S. HRG. 101-1013

MID-DAKOTA RURAL WATER SYSTEM ACT OF 1989 AND LAKE ANDES-WAGNER/MARTY II UNITS

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

S. 1765

TO AUTHORIZE THE PLANNING AND CONSTRUCTION OF THE MID-DAKOTA RURAL WATER SYSTEM, AND FOR OTHER PURPOSES

S. 2710

TO AUTHORIZE THE SECRETARY OF THE INTERIOR TO CONSTRUCT, OPERATE, AND MAINTAIN THE LAKE ANDES-WAGNER UNIT AND THE MARTY II UNIT, SOUTH DAKOTA PUMPING DIVISION, PICK-SLOAN MISSOURI BASIN PROGRAM, AND FOR OTHER PURPOSES

JUNE 19, 1990

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MID-DAKOTA RURAL WATER SYSTEM ACT OF 1989 AND LAKE ANDES-WAGNER/MARTY II UNITS

TUESDAY, JUNE 19, 1990

U.S. SENATE,
SUBCOMMITTEE ON WATER AND POWER,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:03 a.m., in room SD-366, Dirksen Senate Office Building, Hon. Bill Bradley, presiding.

OPENING STATEMENT OF HON. BILL BRADLEY, U.S. SENATOR FROM NEW JERSEY

Senator BRADLEY. The subcommittee will come to order. Today the subcommittee holds a hearing on S. 2710, a bill to authorize the Secretary of the Interior to construct and operate and maintain the Lake Andes-Wagner Unit and the Marty II Unit in the South Dakota Pumping Division in the Pick-Sloan Missouri Basin program, and for other purposes, and S. 1765, a bill to authorize the planning and construction of the Mid-Dakota Rural Water System and for other purposes.

The subcommittee has heard testimony on some of these subjects on previous occasions. Many people who are in the audience today have shared their thoughts with us on previous occasions and I welcome them all back to the subcommittee. Would anyone—Senator Ford, do you have anything to say?

Senator FORD. No. I am prepared to move forward and hear the testimony so we can pass these bills out.

Senator BRADLEY. Senator Burns?

Senator BURNS. No.

Senator BRADLEY. We have as our first witness Senator Tom Daschle and Senator Larry Pressler and Congressman Tim Johnson of the House of Representatives. Welcome to the subcommittee, and I welcome your testimony.

I would say that you have been a very powerful advocate for these projects, Senator Daschle. I know that in our discussions you have demonstrated a real willingness to understand and to move and to try to get things done. So welcome to the subcommittee.

[The texts of S. 1765 and S. 2710 follow:]

II

101ST CONGRESS
1ST SESSION

S. 1765

To authorize the planning and construction of the Mid-Dakota Rural Water System, and for other purposes.

IN THE SENATE OF THE UNITED STATES

OCTOBER 17 (legislative day, SEPTEMBER 18), 1989

Mr. PRESSLER (for himself and Mr. DASCHLE) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

---

A BILL

To authorize the planning and construction of the Mid-Dakota Rural Water System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Mid-Dakota Rural Water System Act of 1989".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

(a) AUTHORIZATION.—For purposes of development of safe and adequate municipal, rural, and industrial water supplies, mitigation of wetland areas, and water conservation in South Dakota, there are authorized to be appropriated to the

Secretary of the Interior for the Bureau of Reclamation the amount of $100,000,000. Such amount shall be used for planning and construction of a rural water treatment and distribution system in portions of, but not limited to, Beadle (including the city of Huron), Buffalo, Hand, Hughes, Hyde, Jerauld, Potter, Sanborn, Spink, and Sully Counties in South Dakota that will furnish water for domestic and other purposes. Such rural water treatment and distribution system is hereafter referred to in this Act as "the Mid-Dakota Rural Water System", as generally proposed by the Mid-Dakota Rural Water System, Inc., and as described in the report "Mid-Dakota Rural Water System Feasibility Study and Report", dated November 1988 and revised March 1989. The funds authorized to be appropriated by this section may be increased or decreased by such amounts as may be justified by reason of ordinary fluctuations in development costs incurred after January 1, 1989, as indicated by engineering cost indices applicable for the type of construction involved.

(b) FINANCIAL ASSISTANCE.—The Secretary of the Interior shall use funds appropriated under this Act to provide financial assistance to plan and develop the Mid-Dakota Rural Water System under the terms and conditions of section 306 of Public Law 87–128 and the rules and regulations promulgated under that law, except to the extent such law or rules or regulations promulgated thereunder are inconsistent

with the provisions of this Act. Such funds shall be made available in a combination of grants and loans as may be necessary to plan and construct the Mid-Dakota Rural Water System. Loans shall be at an interest rate of 5 percent per annum. Interest on a loan shall not be charged during construction and the first payment shall not be due until after the project is complete. Grants may exceed 75 percent of eligible development cost, regardless of median household income, if necessary to reduce user costs to a reasonable level.

SEC. 3. WATER CONSERVATION.

The Secretary may not obligate any Federal funds for the construction of the Mid-Dakota Rural Water System, until the Secretary finds that appropriate non-Federal interests have developed and implemented water conservation programs throughout the service area of the Mid-Dakota Rural Water System. The purpose of such programs shall be to ensure that such rural water systems and its customers are utilizing the best practical technology and management techniques to reduce water use and water system costs.

SEC. 4. MITIGATION OF FISH AND WILDLIFE LOSSES.

(a) IN GENERAL.—Mitigation for fish and wildlife losses incurred as a result of the construction and operation of the Mid-Dakota Rural Water System, shall be on an acre-for-acre basis, based on ecological equivalency, concurrent with project construction.

(b) TREATMENT OF COSTS.—Facilities and any other project features which furnish waterfowl and other fish and wildlife benefits beyond the mitigation required shall be constructed, operated, and maintained and the costs of such construction, operation, and maintenance shall be nonreimbursable and nonreturnable.

SEC. 5. USE OF PICK-SLOAN POWER.

(a) IN GENERAL.—(1) From power designated for future irrigation and drainage pumping for the Pick-Sloan Missouri River Basin Program and subject to the conditions set forth in subsection (b), the Administrator of the Western Area Power Administration shall annually make available during the period specified in paragraph (3) the capacity and energy required to meet the pumping requirements, and operational uses incidental thereto, of the Mid-Dakota Rural Water Systems. For the purposes of this section—

(A) the term "pumping requirements, and operational uses incidental thereto," means all power requirements incident to the operation of intake facilities, pumping stations, water treatment facilities, reservoirs and pipelines to, but not beyond, the point of delivery of water by the Mid-Dakota Rural Water System to, as the case may be—

(i) each entity which distributes water at retail to individual users, or

(ii) each rural use location; and

(B) the term "rural use location" includes a water use location in or in the vicinity of a municipality identified in appendix A of the Feasibility Report referred to in section 2(a), if on December 31, 1988, no entity referred to in subparagraph (A) was engaged in the business of distributing water at retail to users in that municipality or vicinity, and there are no more than 40 water use locations in and in the vicinity of that municipality.

(2) The period referred to in paragraph (1) is the summer electrical season of the Western Area Power Administration which commences in the month of May and extends through October.

(b) CONDITIONS.—The availability of the capacity and energy referred to in subsection (a) is subject to the following conditions:

(1) The Mid-Dakota Rural Water System shall be operated on a not-for-profit basis.

(2) The Mid-Dakota Rural Water System shall contract to purchase its entire electric service requirements, including the capacity and energy to be made available under subsection (a), from cooperatives which purchase power from a cooperative supplier which

itself purchases power from the Western Area Power Administration.

(3) The rate schedule applicable to the capacity and energy made available under subsection (a) shall be the firm power rate schedule of the Pick-Sloan Eastern Division of the Western Area Power Administration in effect when such power is delivered by the Western Area Power Administration.

(4) By contract among the Western Area Power Administration, the power supplier with which the Mid-Dakota Rural Water System contracts under paragraph (2), that entity's power supplier, and the Mid-Dakota Rural Water System, for the capacity and energy made available under subsection (a), the benefit of the rate schedule identified in paragraph (3) shall be passed through to the Mid-Dakota Rural Water System. This requirement shall not preclude the power supplier to the Mid-Dakota Rural Water System from including in the charges to the Mid-Dakota Rural Water System for such electric service any and all other usual and customary charges.

(5) The Mid-Dakota Rural Water System shall pay its supplier for electric service, other than for capacity and energy made available under subsection (a),

in accordance with that supplier's then effective applicable rate schedule.

SEC. 6. RULE OF CONSTRUCTION.

Nothing in this Act is intended, nor shall be construed, to preclude the State of South Dakota from seeking congressional authorization to plan, design, operate, or construct additional federally assisted water resource development projects.

SEC. 7. WATER RIGHTS.

Nothing in this Act shall be construed to—

(1) impair the validity of or preempt any provision of State water law, or of any interstate compact governing water;

(2) alter the rights of any State to any appropriated share of the waters of any body of surface or ground water, whether determined by past or future interstate compacts, or by past or future legislative or final judicial allocations;

(3) preempt or modify any State or Federal law or interstate compact dealing with water quality or disposal; or

(4) confer upon any non-Federal entity the ability to exercise any Federal right to the waters of any stream or to any ground water resources.

II

101ST CONGRESS
2D SESSION

S. 2710

To authorize the Secretary of the Interior to construct, operate, and maintain the Lake Andes-Wagner Unit and the Marty II Unit, South Dakota Pumping Division, Pick-Sloan Missouri Basin Program, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 6, (legislative day, APRIL 18), 1990

Mr. DASCHLE (for himself and Mr. PRESSLER) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

---

A BILL

To authorize the Secretary of the Interior to construct, operate, and maintain the Lake Andes-Wagner Unit and the Marty II Unit, South Dakota Pumping Division, Pick-Sloan Missouri Basin Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. AUTHORIZATION OF THE LAKE ANDES-WAGNER UNIT AND THE MARTY II UNIT, SOUTH DAKOTA.

The Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") acting through the Bureau of Reclamation (hereinafter in this Act referred to as "Reclamation") is authorized to construct, operate, and maintain the

Lake Andes-Wagner Unit and the Marty II Unit, South Dakota, as Units of the South Dakota Pumping Division, Pick-Sloan Missouri Basin Program. The Units shall be integrated physically and financially with other Federal works constructed under the Pick-Sloan Missouri Basin Program.

SEC. 2. CONDITIONS.

(a) LAKE ANDES-WAGNER UNIT.—The Lake Andes-Wagner Unit shall be constructed, operated, and maintained to irrigate not more than approximately forty-five thousand acres substantially as provided in the Lake Andes-Wagner Unit Planning Report/Final Environmental Impact Statement filed September 17, 1985, supplemented as provided in section 4 of this Act. The Lake Andes-Wagner Unit shall include on-farm pumps, irrigation sprinkler systems, and other on-farm facilities necessary for the irrigation of not to exceed approximately one thousand seven hundred acres of Indian-owned lands. The use of electric power and energy required to operate the facilities for the irrigation of such Indian-owned lands and to provide pressurization for such Indian-owned lands shall be considered to be a project use.

(b) MARTY II UNIT.—The Marty II Unit shall include a river pump, irrigation distribution system, booster pumps, irrigation sprinkler systems, farm and project drains, electrical distribution facilities, and the pressurization to irrigate not more than approximately three thousand acres of Indian-

owned land in the Yankton-Sioux Indian Reservation, substantially as provided in the Marty II Unit Planning Report/ Final Environmental Impact Statement referred to in section 4 of this Act.

(c) REPAYMENT OF CONSTRUCTION COSTS.—The construction costs of the Lake Andes-Wagner Unit allocated to irrigation (both those assigned for return by the water users and those assigned for return from power revenues of the Pick-Sloan Missouri Basin Program) shall be repaid no later than forty years following the development period. Repayment of the construction costs of the Marty II Unit allocated to irrigation shall be governed by the Act of July 1, 1932 (47 Stat. 564 Chapter 369; U.S.C. 386a).

(d) INDIAN-OWNED LANDS.—Indian-owned lands, or interests therein, required for the Lake Andes-Wagner Unit or the Marty II Unit may, as an alternative to their acquisition pursuant to existing authority under the Federal reclamation laws, be acquired by exchange for lands or interests therein of equal or greater value which are owned by the United States and administered by the Secretary or which may be acquired for that purpose by the Secretary.

(e) AGRICULTURE PROGRAMS.—For purposes of participation of lands in the Lake Andes-Wagner Unit and the Marty II Unit in programs covered by title V of the Agricultural Act of 1949 (7 U.S.C. 1461 et seq.) the crop acreage

base determined under section 504 of such Act (7 U.S.C. 1464) and the program payment yield determined under section 506 of such Act (7 U.S.C. 1466) shall be the crop acreage base and program payment yield established for the crop year immediately preceding the crop year in which the development period for each Unit is initiated. For any successor programs established for crop years subsequent to 1990, the acreage and yield on which any program payments are based shall be determined without taking into consideration any increase in acreage or yield resulting from the construction and operation of the Units.

(f) RURAL WATER SUPPLY.—Facilities constructed pursuant to section 1 of this Act may be utilized for purposes of rural (including municipal and industrial) water supplies pursuant to agreements entered into between the Secretary and any entity operating a rural water supply system serving the area. Such agreements shall be satisfactory to the Secretary and may include provisions for inclusion of capacity, improvements, modifications, additions and enlargements, subject to cost sharing of construction costs allocable to rural water supply as provided in paragraphs (2) and (3) of section 4(a) of the Mni Wiconi Project Act of 1988 (Public Law 100–516). Such agreements shall include provisions requiring the contracting entity to bear an appropriate share of operation and maintenance (including expenses of administration) and

replacement costs with respect to facilities jointly used and all such costs in the case of facilities when devoted solely to service to the contracting entity: *Provided,* That power used for service, other than during the summer electrical season of the Western Area Power Administration, to a contracting entity under this section shall not constitute a project use. Neither construction nor operation, maintenance and replacement costs allocable to irrigation may be increased as a result of any agreement made under this subsection. No agreement shall be made under this subsection without the approval of the Lake Andes-Wagner Irrigation District or of the Yankton Sioux Tribe, as the case may be, nor unless the Secretary finds that it will not impair the efficiency of the Lake Andes-Wagner Unit or the Marty II Unit for irrigation purposes, nor shall any such agreement be made until the requirements of the National Environmental Policy Act of 1969 have been met. Section 5 of the Mni Wiconi Project Act of 1988 shall apply to all agreements made under this subsection. Mitigation for fish and wildlife losses, if any, incurred as a result of any agreement made under this subsection shall be on an acre-for-acre basis based on ecological equivalencies, concurrent with construction, if any, under the agreement.

(g) MITIGATION OF FISH AND WILDLIFE LOSSES.—Mitigation of fish and wildlife losses incurred as a result of the construction and operation of the facilities authorized by

section 1 of this Act shall be concurrent with construction of the Unit involved and shall be on an acre-for-acre basis, based on ecological equivalency. In addition to the fish and wildlife enhancement to be provided by the fish rearing pond of the Lake Andes Unit, other facilities of that Unit may be utilized to provide fish and wildlife benefits beyond the mitigation required to the extent that such benefits may be provided without increasing costs of construction, operation, maintenance or replacement allocable to irrigation or impairing the efficiency of that Unit for irrigation purposes.

SEC. 3. DEMONSTRATION PROGRAM.

(a) DIRECTION.—The Secretary, acting pursuant to existing authority under the Federal reclamation laws, shall, through Reclamation, and with the assistance and cooperation of the Oversight Committee consisting of representatives of the Bureau of Indian Affairs, the Environmental Protection Agency, the Fish and Wildlife Service, the Geological Survey, the South Dakota Departments of Game, Fish and Parks and Water and Natural Resources, the Yankton Sioux Tribe, the Lake Andes-Wagner Water System, Inc. and Reclamation, carry out a demonstration program (hereinafter in this Act the "Demonstration Program") in substantial accordance with the "Lake Andes-Wagner/Marty II Demonstration Program Plan of Study," dated May 1990, a copy of which is on file with the Committee on Interior and Insular

Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(b) OBJECTIVES.—The objectives of the Demonstration Program shall include—

(1) the development of accurate and definitive means of quantifying projected irrigation and drainage requirements, and providing reliable estimates of drainage return flow quality and quantity, with respect to glacial till and other soils found in the specific areas to be served with irrigation water by the Lake Andes-Wagner Unit and the Marty II Unit and which may also have application to the irrigation and drainage of similar soils found in other areas of the United States;

(2) the development of irrigation best management practices for the purpose of improving the efficiency of water use and developing and demonstrating management techniques and technologies for glacial till soils which will prevent or otherwise ameliorate the degradation by irrigation practices of water quality;

(3) the investigation and demonstration of the potential for development and enhancement of wetlands and fish and wildlife within and adjacent to the service areas of the Lake Andes-Wagner Unit and the Marty II Unit through the application of water, and other management practices;

(4) the investigation and demonstration of the suitability of glacial till soils for crop production under irrigation giving preference to crops that are not eligible for assistance under programs covered by title V of the Agricultural Act of 1949 (7 U.S.C. 1462 et seq.) and by any successor programs established for crop years subsequent to 1990.

(c) AGREEMENTS WITH PARTICIPATING LANDOWNERS.—Study sites shall be obtained through leases from landowners who voluntarily agree to participate in the Demonstration Program under the following conditions:

(1) Rentals paid under a lease shall be based on the fair rental market value prevailing for dry land farming of lands of similar quantity and quality plus a payment representing reasonable compensation for inconveniences to be encountered by the lessor;

(2) All water, delivery systems, pivot systems and drains will be supplied by Reclamation;

(3) Reclamation will operate and maintain the irrigation system;

(4) Reclamation will supply all seed, fertilizers and pesticides and will make standardized equipment available;

(5) Reclamation will determine crop rotations and cultural practices;

(6) Reclamation shall have unrestricted access to leased lands;

(7) Reclamation, at its option, may contract with the lessor and/or custom operators to accomplish agricultural work, which work shall be performed as prescribed by Reclamation;

(8) No grazing may be performed on a study site;

(9) Crops grown shall be the property of the United States;

(10) At the conclusion of the lease, the lands involved will, to the extent practicable, be restored by Reclamation to their pre-leased condition at no expense to the lessor.

(d) SALE OF CROPS.—Reclamation shall offer crops grown under the Demonstration Program for sale to the highest bidder under terms and conditions to be prescribed by Reclamation. Any crops not sold shall be disposed of as Reclamation determines to be appropriate: *Provided,* That no crop may be given away to any for-profit entity or farm operator. All receipts from crop sales shall be covered into the Treasury to the credit of the fund from which appropriations for the conduct of the Demonstration Program are derived.

(e) PROTECTION OF ASCS BASE.—The land from each ownership in a study site shall be established by the Secretary as a separate farm. Each such study site farm will,

during the demonstration phase of the Demonstration Program, annually receive planted and considered planting credit equal to the crop acreage base established for the farm by use of crop land ratios when it became a separate farm without regard to the acreage actually planted on the farm: *Provided*, That the establishment of such study site farms shall not entitle the Secretary to participate in farm programs or to build program base.

(f) REPORTS.—(1) The Secretary shall periodically, but not less often than once a year, report to the Committee on Interior and Insular Affairs of the House of Representatives, to the Committee on Energy and Natural Resources of the Senate and to the Governor of South Dakota concerning the activities undertaken pursuant to this section. The Secretary's reports and other information and data developed pursuant to this section shall be available to the public without charge.

(2) Each Demonstration Program report, including the report referred to in clause (C) of this paragraph, shall evaluate data covering the results of the Demonstration Program as carried out on the six study sites during the period covered by the report together with data developed under the wetlands enhancement aspect during that period. At the conclusion of the fifth full irrigation season, the demonstration

phase of the Demonstration Program shall terminate and the Secretary shall proceed promptly thereafter:

(A) To remove temporary facilities and equipment and to restore the study sites as nearly as practicable to their pre-lease condition: *Provided,* That the Secretary may transfer the pumping plant and/or distribution lines to public agencies for uses other than commercial irrigation;

(B) To otherwise wind up the Demonstration Program; and

(C) To prepare a concluding report and recommendations covering the entire demonstration phase, which report shall be transmitted by the Secretary to the Congress and to the Governor of South Dakota not later than April 1 of the calendar year following the calendar year in which the demonstration phase of the Demonstration Program terminates. The Secretary's concluding report, together with other information and data developed in the course of the Demonstration Program, shall be available to the public without charge.

(g) TREATMENT OF COSTS.—Costs of the Demonstration Program funded by Congressional appropriations shall be accounted for pursuant to the Act of October 29, 1971 (Public Law 92–149, 85 Stat. 416). Costs incurred by the

State of South Dakota and any agencies thereof arising out of consultation and participation in the Demonstration Program shall not be reimbursed by the United States.

(h) FUNDING FOR FEDERAL AGENCIES.—Funding to cover expenses of the Federal agencies participating in the Demonstration Program shall be included in the budget submittals for Reclamation and Reclamation, out of the funds appropriated for the Demonstration Program, shall transfer to the other Federal agencies funds appropriated for their expenses.

SEC. 4. PLANNING REPORTS/ENVIRONMENTAL IMPACT STATEMENTS.

(a) On the basis of the concluding report and recommendations of the Demonstration Program provided for in section 3:

(1) Reclamation, using the alternative benefit evaluation procedures employed in formulating the Lake Andes-Wagner Unit Planning Report/Final Environmental Impact Statement filed September 17, 1985, shall, in accordance with applicable Interior Department and Council on Environmental Quality procedures, prepare and file with the Environmental Protection Agency both a draft and a final supplement thereto.

(2) Reclamation, utilizing alternative benefit evaluation procedures, shall, in accordance with applicable Interior Department and Council on Environmental Quality procedures, complete and file both a draft and a final Planning Report/Environmental Impact Statement with the Environmental Protection Agency covering the Marty II Unit.

(3) The final reports described in paragraphs (1) and (2) shall be transmitted to the Congress simultaneously with their filing with the Environmental Protection Agency.

(b) Each report described in paragraphs (1) and (2) shall include a detailed plan providing for the prevention, correction or mitigation of adverse water quality conditions attributable to agricultural drainage water originating from lands to be irrigated by the Unit to which the report pertains and shall be accompanied by a finding by the Secretary that the Unit to which the report pertains can be constructed, operated and maintained so as to comply with applicable water quality standards.

(c) The construction of a Unit may not be undertaken until the final report pertaining to that Unit has lain before the Congress for not less than ninety days and the Congress has appropriated funds for the initiation of construction.

SEC. 5. INDIAN EMPLOYMENT.

In carrying out sections 1, 2 and 3 of this Act, preference shall be given to the employment of members of the Yankton-Sioux Tribe who can perform the work required regardless of age (subject to existing laws and regulations), sex, or religion, and to the extent feasible in connection with the efficient performance of such functions training and employment opportunities shall be provided members of the Yankton-Sioux Tribe regardless of age (subject to existing laws and regulations), sex, or religion who are not fully qualified to perform such functions.

SEC. 6. FEDERAL RECLAMATION LAWS GOVERN.

This Act is a supplement to the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts supplemental thereto and amendatory thereof). The Federal reclamation laws shall govern all functions undertaken pursuant to this Act, except as otherwise provided in this Act.

SEC. 7. COST SHARING.

(1) IN GENERAL.—The Proposal dated September 29, 1987, supplemented October 30, 1987 (on file with the Committee on Interior and Insular Affairs of the House of Representatives and with the Committee on Energy and Natural Resources of the Senate), pursuant to which the State of South Dakota (hereafter in this section referred to as the "State") and the Lake Andes-Wagner Irrigation District (hereafter in this section referred to as the "District") would

provide funding for certain costs of the Lake Andes-Wagner Unit, and the District would also assume certain responsibilities with respect thereto, is approved subject to the provisions of subsection (b) of this section. The Secretary shall promptly enter into negotiations with the State and the District to conclude an agreement between the United States, the State, and the District implementing the proposal.

(b) TERMS AND CONDITIONS.—The agreement shall include provisions for—

(1) the establishment and capitalization of the non-Federal fund, including, subject to the Secretary's approval, investment policies and selection of the administering financial institution, and including also provisions dealing with withdrawals of moneys in the fund for construction purposes.

(2) the District to administer the design and construction, which shall be subject to the approval of the Secretary, of the distributon and drainage systems for the Lake Andes-Wagner Unit;

(3) financing, from moneys in the fund referred to in paragraph (1), the construction cost of the ring dike, not exceeding $3,500,00, the construction cost, if any, of such dike in excess of that amount being the responsibility of the United States but any such excess cost remains reimbursable, subject to the condition that con-

struction of the ring dike shall not commence earlier than the sixth year of full operation; and

(4) financing, from moneys in the fund referred to in paragraph (1), the construction cost of the Unit's closed drainage system, not exceeding $36,000,000, the construction cost, if any, of the closed drainage system in excess of that amount being the responsibility of the United States but any such excess cost remains reimbursable, subject to the conditions that—

(A) construction of the closed drainage system shall commence not earlier than the sixth year of full operation of the Unit and shall continue over a period of thirty-five years as required by the Secretary subject to such modifications in the commencement date and the construction period as the Secretary determines to be required on the basis of physical conditions; and

(B) the District, in addtion to such annual assessments as may be required to meet its expenses (including operation and maintenance costs and any annual repayment installments to the United States) shall, commencing three years after construction of the Unit (other than drainage facilities) has been completed, levee assessments annually of not less than $1.00 per irrigable acre

calculated to provide moneys sufficient, together with other moneys in the fund, including anticipated accruals, referred to in paragraph (1), to finance not to exceed $36,000,000 of the construction costs of the closed drainage system.

(C) In the event the detailed plan for the Lake Andes-Wagner Unit referred to in subsection (b) of section 4 reduces the irrigated acreage of the Lake Andes-Wagner Unit to less than forty-five thousand, the District's maximum obligation hereunder shall be reduced in the ratio that the reduction in acreage bears to forty-five thousand.

(c) ANNUAL BUDGET REPORTS.—(1) Subject to the provisions of paragraph (2) of this subsection, the Secretary shall request that there be included in the annual budget documents submitted by the President to Congress funds permitting completion of construction of the Lake Andes-Wagner Unit (other than the ring dike and closed drainage features) over a period of six years beginning no later than the fiscal year that commences in the second calendar year following the calendar year in which the Supplemental Planning Report/Final Environmental Impact Statement referred to in paragraph 1 of subsection (a) of section 4 of this Act is transmitted to the Congress.

(2) In the event of a delay in construction occasioned by an act of God, or of the public enemy, or any major catastrophe or other unforeseen and unavoidable cause of a similar nature, appropriate extensions of time shall be afforded the District in the making of assessments to finance construction of the closed drainage system.

SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

(a) LAKE ANDES-WAGNER UNIT.—There are authorized to be appropriated—

(1) $165,000,000 (October 1989 price levels) for construction of the Lake Andes-Wagner Unit (other than the facilities described in the second sentence of subsection (a) of section 2 of this Act) less the non-Federal contributions as provided in paragraphs (3) and (4) of subsection (b) of section 7 of this Act; and

(2) $1,350,000 (October 1989 price levels) for construction of the facilities described in the second sentence of subsection (a) of section 2 of this Act, which amounts include costs of the Lake Andes-Wagner Irrigation District in administering design and construction of the irrigation distribution and drainage systems.

(b) MARTY II UNIT.—There are authorized to be appropriated $21,000,000 (January 1989 price levels) for con-

struction by the Bureau of Reclamation in consultation with the Bureau of Indian Affairs of the Marty II Unit.

(c) DEMONSTRATION PROGRAM.—There are authorized to be appropriated such amounts as may be necessary to carry out the Demonstration Program.

(d) INDEXING ADJUSTMENTS.—(1) The amounts authorized to be appropriated by subsections (a) and (b) of this section shall be plus or minus such amounts, if any, as may be required by engineering costs indexes applicable to the type of construction involved.

(e) OPERATION AND MAINTENANCE.—There are authorized to be appropriated such sums as may be necessary for the operation and maintenance of each Unit.

SEC. 9. INDIAN WATER RIGHTS.

Nothing in this Act shall be construed as affecting any water rights or claims thereto of the Yankton-Sioux tribe.

STATEMENT OF HON. THOMAS A. DASCHLE, U.S. SENATOR FROM SOUTH DAKOTA

Senator DASCHLE. Thank you once again, Mr. Chairman and members of the subcommittee. I appreciate your willingness to devote the morning to this hearing, and I know it will be a productive one.

I would ask unanimous consent that the full text of my prepared remarks, plus the entire demonstration program and the report of the wetland enhancement component of the Mid-Dakota Rural Water System be made a part of the record right at the beginning.

Senator BRADLEY. It will be made a part of the record.

Senator DASCHLE. These two projects are more than just water projects. I think they represent what Congress considers to be the future of rural America. If there is a commitment to rural America, then we have got to find ways to meet the real needs of the people in a cost-effective and environmentally sensitive fashion, and that is what these projects are all about.

As the Chairman knows, the House just past last week legislation to reform the reclamation law in the country. This legislation was the result of decades of abuse of the system where wealthy farmers became richer at the expense of the environment and the taxpayer. Lost to the abuses of the Central Valley of California are the original intentions of reclamation to help the rural development needs of rural America by providing water. There is no straight irrigation project which has passed the Congress in at least 15 years. They are not popular these days.

But South Dakota and other rural Americans should not be punished for the abuses of others. Instead, we hope to be examples of how reclamation is supposed to work and actually can work. Lake Andes-Wagner/Marty II is a project of that kind. Frankly, if ever there was an irrigation project that should be built, it ought to be Lake Andes-Wagner. It is an economically depressed region, it is cost-effective, it is only for small farmers, it is close to the river and requires very little lift, and it has many wildlife enhancement opportunities.

Because of the recent discoveries of selenium pockets in the area, the project is now contingent upon what is undoubtedly the most stringent research and demonstration program ever associated with a reclamation project. The project cannot be built for at least a 9-year period, during which a study is to be completed, and if the project is still found to be feasible environmentally and economically, only then would we move forward with the original construction.

This is a lot to ask of local sponsors, who already waited more than 20 years and now will have to wait at least another 15 years before putting the Missouri River water on their crops. But the sponsors are looking for their best self-interest, as they are looking for the interests of their children and their grandchildren in making sure that they have a reason to stay in the region. That is what this is all about. Moreover, they want to make sure that the environment is protected for future generations.

The Mid-Dakota project follows in the tradition of WEB and Mni Wiconi. It will bring drinking water to more than 30,000 people in

24 communities who now have to rely on irregular and often unsafe ground and surface water. In recognition of the importance of making seemingly single-purpose projects do more, the Mid-Dakota project contains an innovative and aggressive approach to wetlands and wildlife enhancement, and like the Lake Andes water project, the Mid-Dakota project helps bring the Bureau of Reclamation further in line with helping meet the real needs of rural Americans.

So together, Mr. Chairman, these projects help shape the Federal commitment to rural America. They are not hand-outs. They are truly investments in the future, made after study, made after a tremendous amount of commitment, and made certainly with the recognition that times have changed.

With that, I would with great pleasure turn the microphone over to our colleague, the Congressman from South Dakota.

[The prepared statement of Senator Daschle and information referred to follow:]

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STATEMENT OF SENATOR TOM DASCHLE

SOUTH DAKOTA

ON S. 2710 AND S. 1765

SUBCOMMITTEE ON WATER AND POWER
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

Mr. Chairman, thank you for holding this hearing on two South Dakota projects, the Lake Andes-Wagner/Marty II Irrigation Project, and the Mid-Dakota Rural Water System. I am aware of the Committee's heavy legislative agenda, and of the Chairman's own busy schedule, and South Dakota is grateful for this chance to discuss our water needs.

Last week the House passed two measures designed to "reform" reclamation policy in America. These changes were viewed as necessary because of wide-scale abuses of programs under the Bureau of Reclamation, primarily in the Central Valley of California. These abuses are alleged to have robbed millions of dollars from the federal treasury, while also spoiling large tracts of important wildlife habitat.

Kesterson National Wildlife Refuge and the federal treasury have not been the only losers from some of the abuses -- both real and perceived -- of the reclamation system. Another casualty has been South Dakota and other places in the upper midwest. Because of the stigma attached to and outrage felt, at some of these abuses, irrigation and reclamation have become dirty words. No straight irrigation project has passed the Congress since the early 1970s. Reclamation and irrigation are now about as popular in Congress as Saddam Hussein.

The hearing today is more about the Bureau of Reclamation and the future of rural America than it is about two South Dakota projects. I know the Chairman recognizes the importance of these issues, and that is why these projects are having a hearing, and why the Chairman has taken so active a personal role in issues that have very little to do with New Jersey and of which few people will take notice.

The Bureau of Reclamation was created to bring economic development to rural America by making water available. Over the years, many of the ideals of the Bureau were perverted, and environmental calamity and waste became synonymous with irrigation. The stature of the Bureau of Reclamationwas adjusted accordingly.

But a new breed of enlightened and energetic Bureau employees is beginning to emerge, dedicated to the original ideals of the agency. We are again seeing people more interested in helping other people than in protecting agency turf. Roger Patterson, Great Plains Regional Director of the Bureau, should be commended for what he is accomplishing in our region, and I thank him for all the hard work he has put in on the Mid-Dakota project and, in particular, for his ability to forge a consensus behind the creative solution to the problems encountered with the Lake Andes-Wagner/Marty II project.

One only has to come to South Dakota to see some of the new directions the agency's water projects are taking. Next year construction will be completed on the WEB drinking water project in northeastern South Dakota, and I cannot begin to tell

you how dramitically something as simple as decent drinking water has changed the quality of life in the project area. Two years ago this subcommittee helped authorize the Mni Wiconi project, and partial funding was provided last year. This project will help bring decent and reliable drinking water to southwestern South Dakota, including the Pine Ridge Indian Reservation. The Mid-Dakota project will continue in this same tradition, providing quality drinking water with an emphasis on environmental protection and enhancement.

If there is a future in irrigation, then Lake Andes-Wagner/Marty II represents the new generation. It is an environmentally-oriented, small-scale and cost-effective irrigation project. It would be a component of Pick-Sloan, the program created in 1944 to compensate upper basin states for land lost beneath the six mainstem Missouri River dams. Lake Andes-Wagner/Marty II is designed to meet the real needs of the small farmers in an economically depressed region. In a remarkable display of compromise and commitment to ensuring a viable project, the authorization of the project is contingent on what will undoubtedly be the most exhaustive research and demonstration program ever associated with a reclamation project. This research program will ensure that the environment is protected. If the environment cannot be protected while keeping the project cost-effective, then no project will be built.

The Subcommittee will hear many witnesses today discussing the specifics of the two projects, and I will not take the Subcommittees time to rehash these facts. Instead I will merely summarize some of the key features of the projects, and attempt to anticipate some questions that those not familiar with the projects may have.

Lake Andes-Wagner/Marty II (S. 2710)

The Lake Andes-Wagner/Marty II project was first conceived more than 20 years ago, and there have been a series of federal hearings on the project, both in Washington and in South Dakota. It is a riverside irrigation project located in Charles Mix County in southeastern South Dakota. The project does not need large and expensive lifts to get the water to the fields. The reservoir, Lake Francis Case, already exists. It is a small, manageable project irrigating approximately 45,000 acres. The Marty II component would irrigate approximately 3,000 acres belonging to the Yankton Sioux Tribe, whose members are very much in need of economic development. The local sponsors and the State of South Dakota have presented a generous cost-share agreement contributing more than $46 million to the $181 million dollar project.

Many question the wisdom of authorizing a water project when agricultural production is not a problem in most parts of the nation. The question of surplus crops and the so-called "double subsidy" is a legitimate concern that is addressed in the bill. The bill contains an innovative section limiting farm subsidy payments to

the dry land value of the crops. I agree that the goal of the project is to provide opportunities outside traditional agricultural practices in the region. But without reliable water, only surplus crops will be grown in the region. With reliable water, farmers can diversify into high-value crops. As the sponsors and the State will testify, there has already been significant economic interest in the area, and a variety of incentives are in place to promote infrastructure investment.

If there is large-scale development in the region, there may be a problem with rural water supply, as the existing system in the area, built with FmHA financing, is operating near capacity. In recognition of this potential need, the Lake Andes-Wagner/Marty II bill would permit facilities of the project to be used by rural drinking water systems so long as a variety of conditions are met, including the condition that any additional costs, including increasing the size of the pump station and water pipes, not be charged to the project. This will limit the risk of the federal government of facing large and unforeseen cost overruns, and will not make federal hydopower pay for the rural water component. Nonetheless, by adding this flexibility to the system, more water needs can be addressed in a cost-effective manner.

Mr. Chairman, several months ago, it looked as if the Lake Andes-Wagner/Marty II project would never be built. No sooner had high selenium levels been verified in the Marty II portion of the project than a re-analysis of the Lake Andes-Wagner portion of the project also turned up areas of unacceptably high selenium. No one in South Dakota wants another Kesterson in our state.

Through examination of the problem by the Bureau, the U.S. Geological Survey, the Environmental Protection Agency and the State of South Dakota, it quickly became evident that no consensus exists about the management of irrigation drainage in varying soil conditions where selenium is present. Because there has been irrigation (from groundwater) in the region for more than 30 years with no apparent adverse environmental impacts, the sponsors asked for more research into the issue. Instead of walking away from the problem, as once might have happened, the Bureau and others proposed making Lake Andes-Wagner/Marty II a guinea pig. For the first time, a full-scale research program could monitor drainage patterns and manage return flows in a controlled environment.

In addition to the knowledge gained from the research, there will be very tangible benefits for the local environment. Fresh water -- not return flows -- will be pumped directly into the Lake Andes National Wildlife Refuge, which will greatly enhance the viability of the refuge. Water will also be provided to several areas that were once wildlife havens, but are now waterless depressions in the prairie, including Owens Bay and Red Lake. These enhanced wetland areas will significantly improve wildlife populations throughout the region.

There can be little question about whether the proposed research is needed.

Drainage and return flow management is a problem not only in South Dakota and California, but also in North Dakota, Wyoming, Colorado and other places with existing irrigation systems or proposed ones, especially those occurring in glacial till or loess soils.

But to the sponsors, the research project comes at a cost. Under the proposed research plan, which I will submit for the record so that everyone can become familiar with it, the soonest that the full project can start to be built is in 10 years. This assumes that the Secretary of the Interior and the Congress are comfortable that the project can be built without adverse environmental impacts, and that the project still has a favorable cost-benefit ratio.

By the time Leo Holzbauer and others actually start putting Missouri River water on their crops, they will have waited at least 35 years for their dream to come true. Obviously, this goes beyond merely providing South Dakota with a specicific water project. As we have been saying all along, the issue at stake is the long term viability of large portions of rural America. Agriculture will remain the backbone of the South Dakota economy, and the economy of most of the Great Plains states, for generations to come. For the economic infrastructure to develop in parts of rural America, agriprocessing often require certainties beyond increasingly fluctuating weather cycles. Without appreciable irrigation development, South Dakota, and in particular Charles Mix County, has seen our young people leave homes on the farms in search of some sort of certainty for the future. This project is not a handout -- it is an investment in the future.

People may claim that this is just another attempt to sneak through an unwise irrigation project under the cloak of a research project. Nothing could be further from the truth. If it had not been for the selenium questions, I am convinced that Lake Andes-Wagner could have already been authorized. This project is what irrigation should be -- real need, good economics, small farmers, and innovative solutions to questions like the double subsidy issue.

To reiterate, under the terms of the bill, the project cannot be built without a new feasibility study from the Secretary of the Interior pursuant to the research program. If it is found that the project is infeasible, either due to environmental or economic concerns, it will never be built. Moreover, the Congress must appropriate the funds for the project.

This is not a shell game, and it is not even a question of whether 48,000 acres of rural South Dakota will receive irrigated water. The question is one of commitment to rural America. If the Congress favors making the Great Plains a buffalo preserve, as some suggest, then we should forget Lake Andes-Wagner/Marty II have everyone move into the cities. If there is to be a future in rural America, as I believe there is, then we must find ways to promote economic development in a cost-effective and environmentally sustainable fashion.

This is why Lake Andes-Wagner/Marty II is such important legislation.

Mid-Dakota Rural Water Supply System (S. 1765)

The Mid-Dakota Rural Water Supply System is the third Bureau of Reclamation water project designed to address the drinking water needs of South Dakota, the other two being the WEB pipeline and the Mni Wiconi project. Mid-Dakota would also become a component of Pick-Sloan. While most South Dakota communities have used the funding from the FmHA to build their rural water supply systems, there are areas of the state that require a system that is simply too large for FmHA financing.

The pipelines are a last resort. They replace mediocre and unreliable groundwater supplies, and they are often the only alternative to trucking water.

In scope, Mid-Dakota is very similar to WEB and Mni Wiconi. It would service twelve counties and require 2,700 miles of pipeline. In all, the pipeline would provide water to at least 24 communities with a population of more than 30,000. As agriculture is the main industry in the area, the project would also provide water to 647,000 head of livestock. Under the terms of the bill, the use of the water for irrigation is prohibited.

I will not dwell on the various technical aspects of the project. Susan Hargens, chairwoman of the Mid-Dakota board will provide very thorough testimony, and she and Julie Apgar, manager of the project, are far more able to address the mechanics of the project than am I. I will say, however, that the sponsors are to be commended on the diligent and thorough job they have done in preparing the Mid-Dakota project for Congress. My staff works closely with the Bureau of Reclamation, and its employees have often commended the sponsors for making the agency's life easier. I echo these praises.

As with the Mni Wiconi project, the Mid-Dakota legislation has strong water conservation provisions, and requires acre-for-acre wildlife mitigation, concurrent with project construction. In a very important aspect of the bill, the project is granted seasonal Pick-Sloan pumping power, which will go a long way in making the water from the pipeline affordable, and the overall project feasible. The arrangement in the Mid-Dakota bill represents a compromise between public power interests and the project sponsors. Among many others, Jeff Nelson, manager of the East River Electric Cooperative, deserves a great deal of credit for his help in crafting this precedent-setting compromise.

Another aspect of the Mid-Dakota project deserves recognition. I would like to insert for the Record the booklet entitled, "The Wetland Development and Enhancement Component of the Mid-Dakota Rural Water System." This outlines

some of the possible wildlife enhancement components of the project. As the Chairman knows, multi-purpose projects should be promoted where possible, and with a little creativity, multiple benefits can be derived from what may appear to be a single purpose project. The Mid-Dakota project is a perfect example.

The recent years of drought in the Prairie Pothole waterfowl region have had a devastating effect on waterfowl populations throughout the flyway. People from Louisiana to the Northwest Territories have been affected by the decline, either by decreased recreational and subsistence opportunities, or by stricter federal and state protection activities. By building a system such as Mid-Dakota, specifically designed to facilitate wetland enhancement, a safeguard is in place for times of drought. It is my hope that the Mid-Dakota project will help set a standard for making sure that wildlife enhancement is an integral part of water development.

There are those who will state that the federal money being provided is simply too great for the expected benefit. I would take issue with this. First, between the $5 million being provided by the State and the $26.66 million to be provided by the local users, more than $31 of the total $108 million cost of the project will be provided by non-federal sources. Moreover, the need for the water is shown by what the users are willing to pay each month, which is several times greater than what we pay here in Washington for our water.

In summary, as with the Lake Andes-Wagner/Marty II project, Mid-Dakota is essential legislation for rural South Dakota. It symbolizes a commitment to rural America, and for health and community stability reasons, I cannot overstate its importance. I thank the chair for holding this hearing, and if there are any questions I can answer, I would be happy to do so.

Lake Andes - Wagner
Marty II

DEMONSTRATION PROGRAM

PLAN OF STUDY

U. S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Billings, Montana

May 1990

The Lake Andes-Wagner/Marty II Demonstration Program Work Group recommends the Plan of Study, as presented herein, to the Management Committee as a sound and accurate document to provide general guidance for the accomplishment of the Demonstration Program. This recommendation does not imply a commitment of land to be used for the Demonstration Program. Such commitment can only be made by execution of an easement or other agreement prior to implementation of the program.

Dennis E. Breitzman, Chairman
Bureau of Reclamation

Michael K. Marohl
Bureau of Reclamation

Richard Nelson
Bureau of Reclamation

Glen Sanders
Bureau of Reclamation

Dick Ruelle
U.S. Fish and Wildlife Service

Ray Cournoyer
Yankton Sioux Tribe

Greg Powell
South Dakota Department of
Water and Natural Resources

Pam Bonrud
South Dakota Department of
Water and Natural Resources

Assad Barari
South Dakota Department of
Water and Natural Resources

5/11/90

Lynn Hedges
South Dakota Department of
Water and Natural Resources

5/11/90

John Kirk
South Dakota Department of
Game, Fish and Parks

Leo Holzbauer
Lake Andes-Wagner Water
Systems, Inc.

The Management Committee, representing the agencies and organizations listed below, concurs with the recommendation of the Work Group that this Plan of Study go forward as a document to provide general guidance for the accomplishment of the Lake Andes-Wagner/Marty II Demonstration Program, as described herein. This recommendation is made to the Regional Director, Great Plains Regional Office, Bureau of Reclamation. Such concurrence does not imply obligation of lands to be used for the Demonstration Program. Lands to be used as part of the Demonstration Program can only be committed to that use by the execution of a lease or other agreement prior to implementation of the program.

Mike Whittington, Chairman
Bureau of Reclamation

Dale Vodehnal
Environmental Protection Agency

Mark Steichen
South Dakota Department of
Water and Natural Resources

Leo Holzbauer
Lake Andes-Wagner Water
Systems, Inc.

Joel A. Medlin
U.S Fish and Wildlife Service

Stephan N. Cournoyer, Jr.
Yankton Sioux Tribe

Dick Beringson
South Dakota Department of
Game, Fish and Parks

Richard J. Beringson

Dan Deerinwater
Bureau of Indian Affairs

Lake Andes-Wagner/Marty II

Demonstration Program

PLAN OF STUDY

U.S. Bureau of Reclamation
Great Plains Region
Billings, Montana

May 1990

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I. BACKGROUND

In 1988, Lake Andes-Wagner Water Systems, Inc. (LAWWSI), and the Yankton Sioux Tribe (Tribe) requested legislation to authorize the Lake Andes-Wagner and Marty II Units as part of the Pick-Sloan Missouri River Basin Program (see Figure 2 for location). During the Congressional hearings, the Commissioner of the Bureau of Reclamation (Reclamation) testified negatively on the Marty II project, recognizing a lack of adequate studies addressing requirements of the Principles and Guidelines and the National Environmental Policy Act. Consequently, LAWWSI, the Tribe, and the Bureau of Indian Affairs (BIA), in conjunction with Reclamation, agreed upon a course of action that would result in a completed special report and environmental assessment for the Marty II Unit. A Planning Report and Final Environmental Impact Statement for the Lake Andes-Wagner Unit was completed in 1985.

A preliminary toxic element investigation, involving both soil and groundwater samples, was conducted as part of the studies needed for completion of the Marty II report. The occurrence of the trace element selenium in the preliminary samples resulted in the expansion of the toxic element sampling effort in the Marty II area. The resultant data, combined with information from studies conducted by the U.S. Fish and Wildlife Service (FWS), resulted in the reexamination of the Lake Andes-Wagner project area.

Data collected to date indicate that selenium is present over the entire area of both projects in concentrations ranging from below detection to a few thousand parts per billion (ppb). The greatest concentrations recorded are one to two orders of magnitude higher in glacial till soils than in non-till soils. The wide variation of till and non-till lands in the project areas will not allow for easy delineation of seleniferous soils.

II. DEMONSTRATION PROGRAM--DEVELOPMENT AND OBJECTIVES

Two primary issues, water quality and subsurface drainage requirements, came into focus as a result of the toxic element investigations. A field scale demonstration program is envisioned, which would involve up to 5 years intensive data collection under a temporary irrigated farming operation.

Data collected to date indicate that contamination of deep aquifers is not probable because of slowly permeable barriers. The anticipated pathway for water quality impacts is through subsurface drainage return flows carrying potentially high concentrations of selenium and other constituents. Although other factors may be influential, the magnitude of the water quality problem will be dictated largely by return flow volume. Therefore, solutions to this potential problem must focus on (1) irrigation and cultural practices which minimize return flows and/or maximize water quality, and (2) methods for treating or disposing of return flows.

There is disagreement among drainage experts as to subsurface drainage requirements for irrigated glacial till soils. The Reclamation planning report for the Lake Andes-Wagner Unit recommends extensive, deferred drainage, representing 25 percent of the total project cost. Other authorities, citing existing irrigation in similar areas, contend that Reclamation's drainage requirements for glacial till soils are excessive. The extent of subsurface drains to be constructed will have an effect on return flow quantity and quality, and on the amount of salt build-up in the irrigated soils. Resolution of this disagreement can only be achieved by investigating the movement of water and salts in the soil profile.

Technical uncertainties related to these issues and interrelated issues can only be resolved by a tightly controlled field demonstration program. Preliminary discussions revealed a need to develop a demonstration program with the following objectives:

1. Refine projected subsurface drainage estimates (return flow quantities),

2. Provide reliable estimates of drainage return flow quality,

3. Develop irrigation best management practices to minimize return flow water quality problems,

4. Evaluate various alternatives for the management of return flows, and

5. Evaluate the project potential for wetland and wildlife development/ enhancement using project water.

The benefits derived from a successful demonstration program with these objectives go beyond the potential advancement of the Lake Andes-Wagner and Marty II Units. Information gained from this demonstration would be transferred to other areas with similar problems. In addition, this demonstration fosters the objectives of sustainable agriculture and State management plans for agricultural nonpoint source pollution. Information gained from this study will be of assistance to South Dakota and other

agricultural states in the preparation and implementation of sound management plans which protect water resources.

To develop a Plan of Study which could be used as a focal point for agreement among agencies on a general study design, Reclamation coordinated an interagency effort. Three groups were established toward this purpose. A Work Group was charged with the responsibility of devising a plan and writing these documents. A Technical Review Committee was formed to provide technical oversight of the Work Group's products, and a Management Committee was established to provide a forum for the input of agency perspectives and policy oversight.

Agencies and organizations represented on these three groups included Reclamation; Bureau of Indian Affairs; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; U.S. Geological Survey; South Dakota Department of Game, Fish and Parks; South Dakota Department of Water and Natural Resources; Yankton Sioux Tribe; and the Lake Andes-Wagner Water Systems, Inc. In addition, two public meetings were held to facilitate the general public's input into the documents.

III. GENERAL STUDY DESIGN

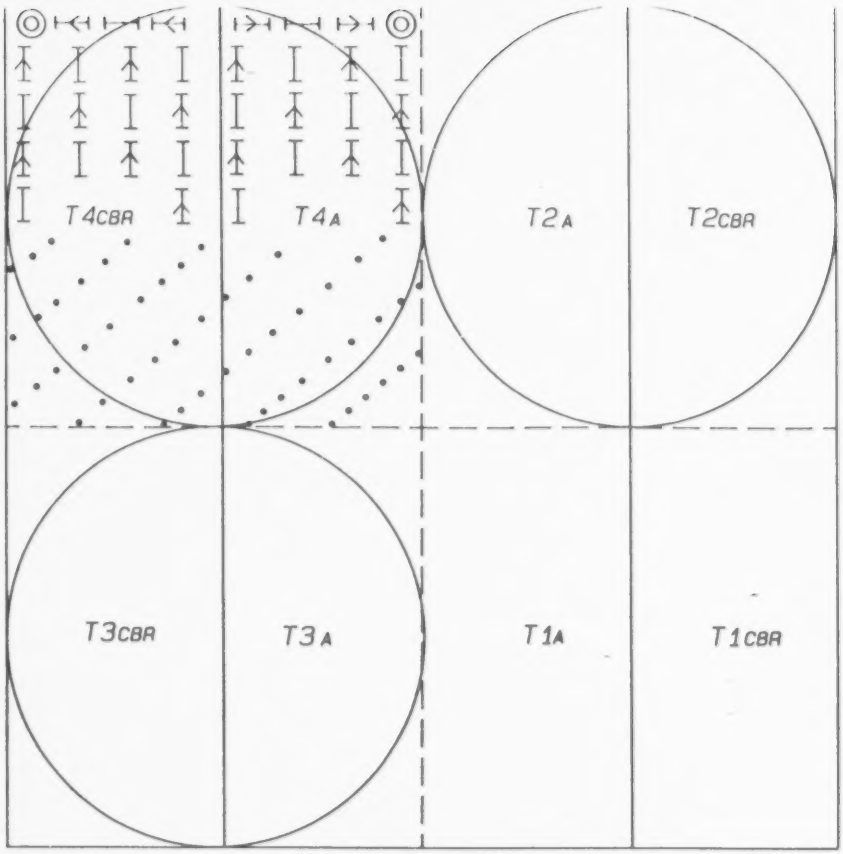
In general, the proposed demonstration program would involve the construction of temporary facilities; i.e., pumping plants, pipelines, and drains, to allow the irrigation of six study sites in the Lake Andes-Wagner and Marty II Units with Missouri River water. Each study site would be one section of land (640 acres), and would be representative of a major landform in the project area. The United States would lease the lands necessary for the study. Reclamation would complete National Environmental Policy Act compliance, and would obtain all permits necessary to construct and operate the program. Reclamation would obtain a temporary water right as may be necessary under the laws of South Dakota for operation of the demonstration program (neither this temporary water right or the demonstration program would in any way infringe upon or affect any water right or claim thereto of the Yankton Sioux Tribe). Reclamation would also construct the necessary facilities, and would be responsible for the demonstration program by conducting or coordinating the investigations. Irrigation and other cultural practices would be prescribed and controlled, and the quantity and quality of drainage return flows would be closely monitored. In addition, the movement of water and salts in the soil profile would be monitored, and alternative methods for the treatment or disposal of return flows would be investigated. Finally, area surface waters and deep aquifers would be monitored to determine the presence or absence of trace elements and chemical contaminants. Since a large amount of information can be generated and collected in an effort this concentrated, it is anticipated that Reclamation would establish and maintain a centralized data base in its Missouri-Souris Projects Office.

Two temporary pumping plants and distribution systems may be required if suitable sites can be located. One pumping plant would be located in an arm of Lake Francis Case and would be part of a distribution system to serve study sites in the Lake Andes-Wagner area. A separate pump and distribution system will be needed to take water from the Missouri River below Fort Randall Dam to serve the study sites in the Marty II area (see Figure 2). It is estimated that the total annual diversion of water from the Missouri River for the demonstration program would be approximately 5,000 acre-feet.

Each 640-acre study site will be divided into eight, 80-acre study areas. Three different irrigation treatments and various cropping patterns will be applied to six of these areas at each site, as described later in this document. Two areas at each study site would be dryland control treatments. Clusters of monitoring instrumentation would be placed in each area of each study site. A typical demonstration program study site layout is shown in Figure 1. In addition to the six study sites, a minimum of two additional sites would be established to investigate drainage requirements and trace element uptake relative to irrigated specialty crops.

It is expected that the final product of this effort will be a Report of Findings which may effect changes in the planning reports and environmental documents prepared for the Lake Andes-Wagner and Marty II Units.

The following sections of this Plan of Study describe individual aspects of the demonstration program in more detail. In years two and three of this program; i.e., following authorization and prior to implementation, a detailed



(640 ACRES)

Subsurface pipe drains

Alternative drain designs

Drain manhole

(Additional pipe drains will be added as necessary)

Treatments:

T1-Dryland
T2-Supplemental Irrigation
T3-Conventional Irrigation
T4-Induced Drainage

CBR-Corn-Beans Rotation
A-Alfalfa

FIGURE 1. TYPICAL STUDY SITE LAYOUT

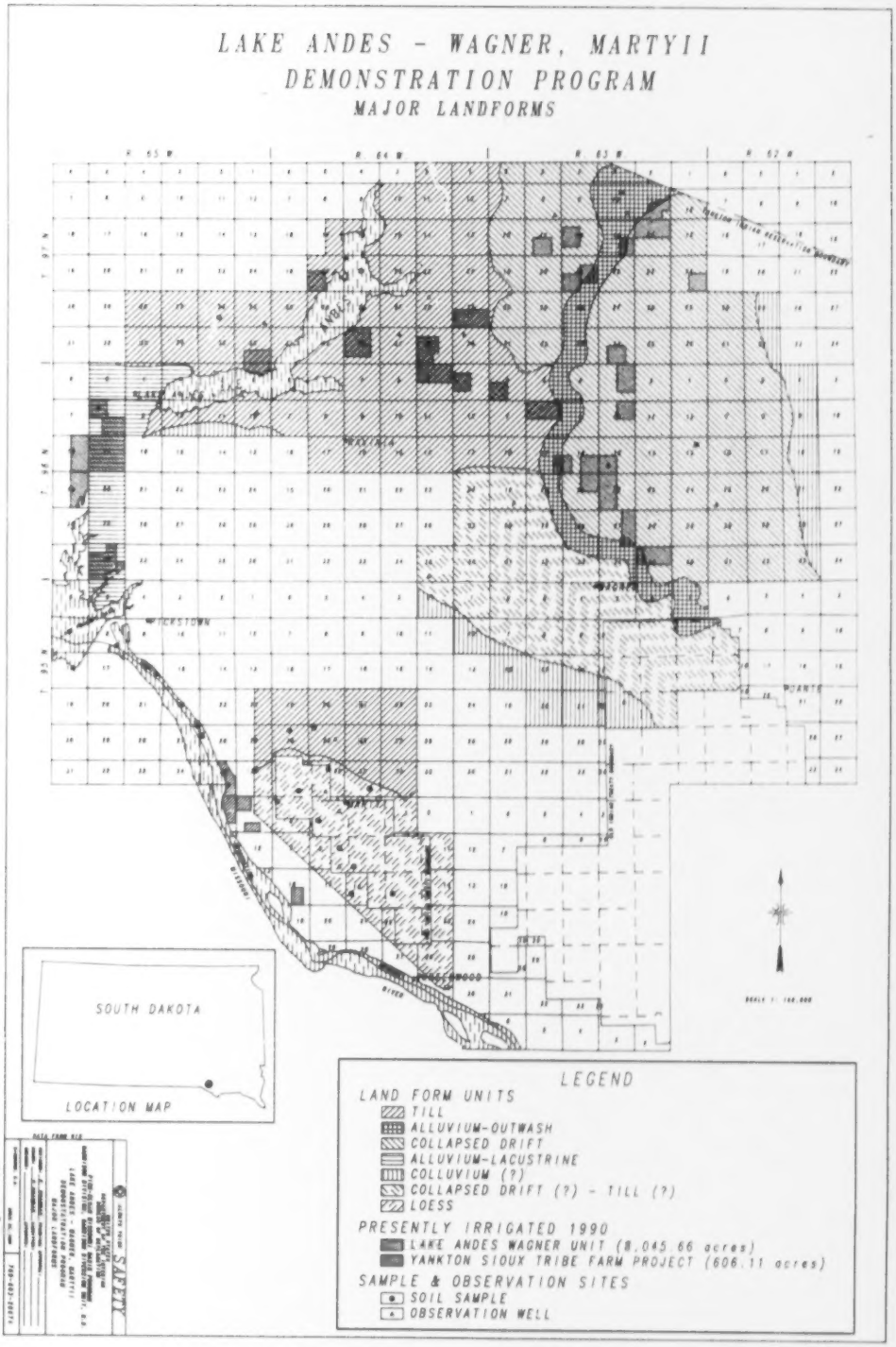

LAKE ANDES - WAGNER, MARTYII
DEMONSTRATION PROGRAM
MAJOR LANDFORMS
R. 65 W.
R. 64 W.
R. 63 W.
R. 62 W.
WAGNER
LAKE ANDES
PLATTE
SOUTH DAKOTA
LOCATION MAP
LEGEND
LAND FORM UNITS
TILL
ALLUVIUM-OUTWASH
COLLAPSED DRIFT
ALLUVIUM-LACUSTRINE
COLLUVIUM (?)
COLLAPSED DRIFT (?) - TILL (?)
LOESS
PRESENTLY IRRIGATED 1990
LAKE ANDES WAGNER UNIT (8,045.66 acres)
YANKTON SIOUX TRIBE FARM PROJECT (606.11 acres)
SAMPLE & OBSERVATION SITES
SOIL SAMPLE
OBSERVATION WELL

Figure 2

study protocol would be developed to address technical details related to study design, data collection, and statistical analyses. This document would provide the study manager and staff with detailed technical guidance for accomplishment of the study.

IV. SITE SELECTION

The objectives of the site selection aspect of the study are (1) select general locations within the study area which are geologically representative of the Lake Andes-Wagner and Marty II Units, and (2) locate landowners within the general locations who are willing to participate in the demonstration program.

Please note that throughout the following section, several references are made to "relative barriers." A relative barrier is any layer within the soil profile which has a hydraulic conductivity of less than 20 percent of the weighted hydraulic conductivity of all the zones above it. A relative barrier may or may not be restrictive to the downward movement of groundwater. Lateral water movement within the relative barrier is very small compared to lateral water movement in the zones above it. It has been well established that virtually all of the water that accrues to a subsurface drain moves to the drain through the zones above the relative barrier. Water movement toward the drains occurs in all layers above the relative barrier, producing all of the soil/water chemical reactions being addressed in the demonstration program. Therefore, the relative barrier and its location is a critical issue relative to many aspects of the program.

Landform Units

Within the Lake Andes-Wagner and Marty II (LAW-MII) project area, there are six known or inferred landform units present. These are till, collapsed drift, alluvium-outwash, alluvium-lacustrine, loess, and colluvium. Distribution of these landform units in the LAW-MII projects is shown in Figure 2. A seventh unit identified as collapsed drift-till(?) is also shown. This is not a separate landform unit, but is identified as questionable because of insufficient detailed data; however, all of the area would likely be included with either the till or collapsed drift areas.

Till

The till landform unit covers about 31 percent of the LAW project. Weathered till underlies 2 to 5 feet of soil to a depth of at least 20 feet. Only minor amounts of stratified drift are found interbedded within the till. In 1989, groundwater levels in till ranged from 9 feet to 16 feet below land surface and averaged 12 feet deep. However, groundwater levels are probably unusually low due to precipitation amounts of only 76 percent of normal from mid-1988 through 1989.

The till landform unit covers about 35 percent of the Marty II area as shown on figure 2; however, only about 15 to 20 percent of the actual project acres are in this landform unit. The till landform unit in this area has steeper slopes incised by drainage. Patchy loess is present, and soils may be derived from reworked till and loess moving downslope toward Mosquito Creek. From limited observations the till appears to be texturally and lithologically similar to till in LAW.

Collapsed Drift

Collapsed drift underlies about 36 percent of the LAW project area. Collapsed drift can consist of till or stratified drift of various lithologies ranging from lake silts to sand and gravel and may exceed 20 feet in thickness. Because of the mode of deposition, till and stratified drift may be variable in thickness and in horizontal continuity and are often found interbedded. During Fall, 1989, groundwater levels were measured at 6, 9, 14, and 15 feet below land surface in four test holes. In general, the collapsed drift west of Choteau Creek and the northern portions east of Choteau Creek contain the most stratified drift.

Collapsed Drift-Till(?)

The area identified as collapsed drift-till(?) contains about 15 percent of the LAW project area. This area may be more representative of the till landform unit; however, it cannot confidently be characterized as such at the present time. The three units (till, collapsed drift, and collapsed drift-till(?)) comprise approximately 82 percent of the LAW project area.

Alluvium-Lacustrine

The alluvium-lacustrine landform unit comprises about 5 percent of the LAW project area. It is underlain by stratified sediments consisting of silt and fine to medium sand with some clayey silt and fine gravel, and may exceed 30 feet in thickness. These sediments are associated with the formation and drainage of Lake Andes during and after the last glaciation. The lateral margins of this landform unit may contain till, and till and bedrock colluvium derived from the steep hills surrounding nearly this entire area. In 1989 one well in the alluvium-lacustrine sediments had a groundwater level of 27 feet.

Alluvium-Outwash

The alluvium-outwash landform unit is present along Choteau Creek and includes the southern portion of the Delmont outwash at the northern boundary of the study area. The outwash-alluvium landform unit accounts for about 5 percent of the project area. This unit is underlain with sand and gravel as much as 50 feet thick and may be capped with several feet of finer-textured alluvium. The water table normally is within a few feet of the land surface, thus, it is an aquifer capable of supporting large-capacity wells where the sand and gravel is extensive.

Loess

Loess is not present as a landform unit in LAW although limited amounts of loess may be present in the upper soil profile and in small patches throughout the area.

Loess as a landform unit covers approximately 64 percent of the Marty II study area and about 80 to 85 percent of the project lands in the Marty II area (figure 2). Loess in excess of 10 feet in thickness is locally present along the southwestern border of the study area but it thins to the northeast toward Mosquito Creek. Loess forms a mantle over till except where alluvium is present along Mosquito Creek. There is about 100 feet of regional slope

toward Mosquito Creek. This drop in elevation occurs within about 1 mile to 1 1/2-mile wide strip parallel to both sides of the creek.

Colluvium

Within LAW, three areas comprising about 8 percent of the land lie at the base of highlands mantled with till. These are areas where reworked till-derived soils could be present, although geologic mapping (Hedges, 1975) and soils mapping (Reber, 1982) do not indicate a widespread occurrence of these soil types.

Selenium in Geologic Materials

From a drainage perspective, relative to selenium content and quality of drainage water, the geologic materials can apparently be divided into two groups--till and non-till deposits. The non-till deposits include loess, lacustrine, alluvium, outwash, and stratified drift associated with collapsed drift.

Till Sediments

Total selenium concentration in till is best characterized as elevated and highly variable throughout the LAW-MII project area lands. Tables 1 and 2 show selenium concentrations from till intervals sampled during the investigations. Values ranged from 100 to 4200 ppb with an average value of 1187 ppb. No consistent areal pattern or vertical distribution in the soil profile was apparent from the available data.

Tables 1 and 2 show concentrations of selenium from saturation extracts of till in the LAW-MII study areas. Selenium concentrations ranged from <0.6 to 3100 ppb and averaged 424 ppb. These concentrations are also elevated, are highly variable, and show no apparent consistent geographic or vertical pattern of occurrence. However, saturation extracts of sediments from LAW 4, 9, and 14 show low (<100 ppb) selenium concentration. These holes were at widely separated locations.

Non-Till Sediments

Total selenium concentrations in non-till sediments are best characterized as elevated and highly variable. Tables 3 and 4 show these values, which, although elevated, have a lower average value of 656 ppb compared to the average value of 1187 ppb from till. As with till, the non-till sediments exhibited no consistent vertical or areal pattern for total selenium concentrations with the available data. However, as a separate geologic grouping, loess from the Marty II area had total selenium concentrations ranging from 500 to 900 ppb thus providing the least variability of total selenium values of any geologic grouping in the project areas.

Tables 3 and 4 show selenium saturation extract concentrations from all non-till sediments. These values ranged from <0.6 to 190 ppb and averaged 30 ppb. While statistically these values indicate high variability, the absolute average concentration of selenium in saturation extracts from non-till sediments is significantly lower than from till sediments. Selenium extract

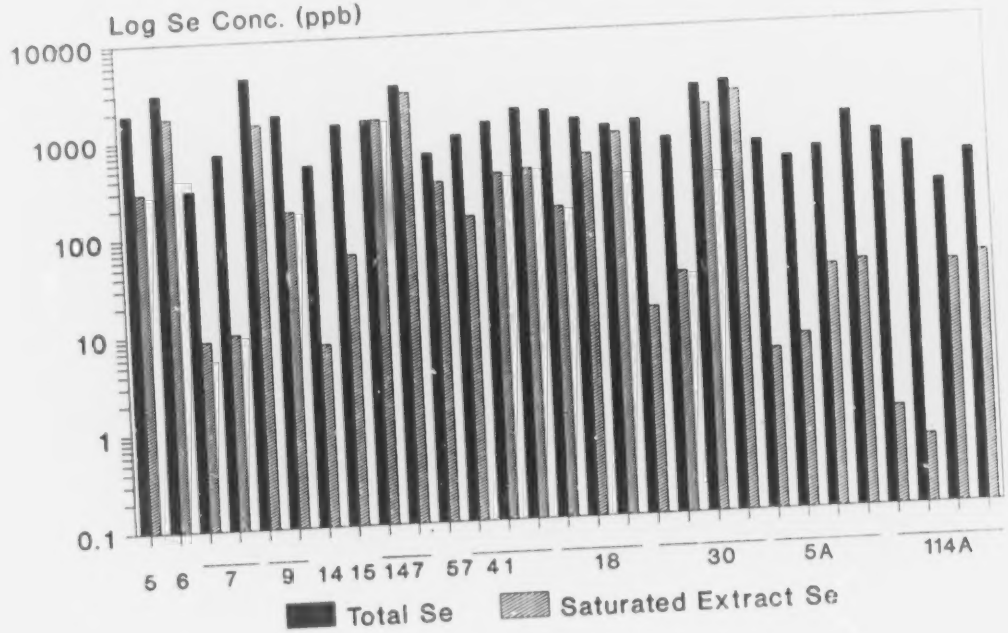
Table 1

SELENIUM CONCENTRATIONS OF TILL SEDIMENTS
FROM SOIL TEST HOLES

Site No.	Depth (inches)	Total Selenium (ppb)	Saturated Extract (ppb)
M-5	68-120	1900	290
M-6	96-120	3000	1700
M-7	42- 76	300	8.6
M-7	76-120	700	10
M-9	20- 36	4200	1400
M-9	36-108	1700	170
M-14	92-120	500	7.4
M-15	99-120	1300	59
LAW-147A	61- 75	1400	1400
LAW-147A	75-120	3100	2600
LAW- 57A	98-120	600	300
LAW- 41A	0- 27	900	130
LAW- 41A	27- 72	1200	350
LAW- 41A	72-120	1600	380
LAW- 18A	0- 39	1500	150
LAW- 18A	39- 60	1200	510
LAW- 18A	60-104	1000	820
LAW- 30A	0- 20	1100	13
LAW- 30A	20- 56	700	29
LAW- 30A	56- 84	2400	1500
LAW- 30A	84-102	2600	2000
LAW- 5A	0- 25	600	4.4
LAW- 5A	25- 34	400	6.1
LAW- 5A	34- 80	500	30
LAW- 5A	80-110	1100	33
LAW-114A	0- 10	700	1.0
LAW-114A	10- 38	500	<0.6
LAW-114A	38- 68	200	30
LAW-114A	68-113	400	36

M, series from Marty II
LAW, series from Lake-Andes Wagner

Selenium Concentrations - Till Sediments From Observation Well Test Holes



Data from Table 1: M5 - LAW114A

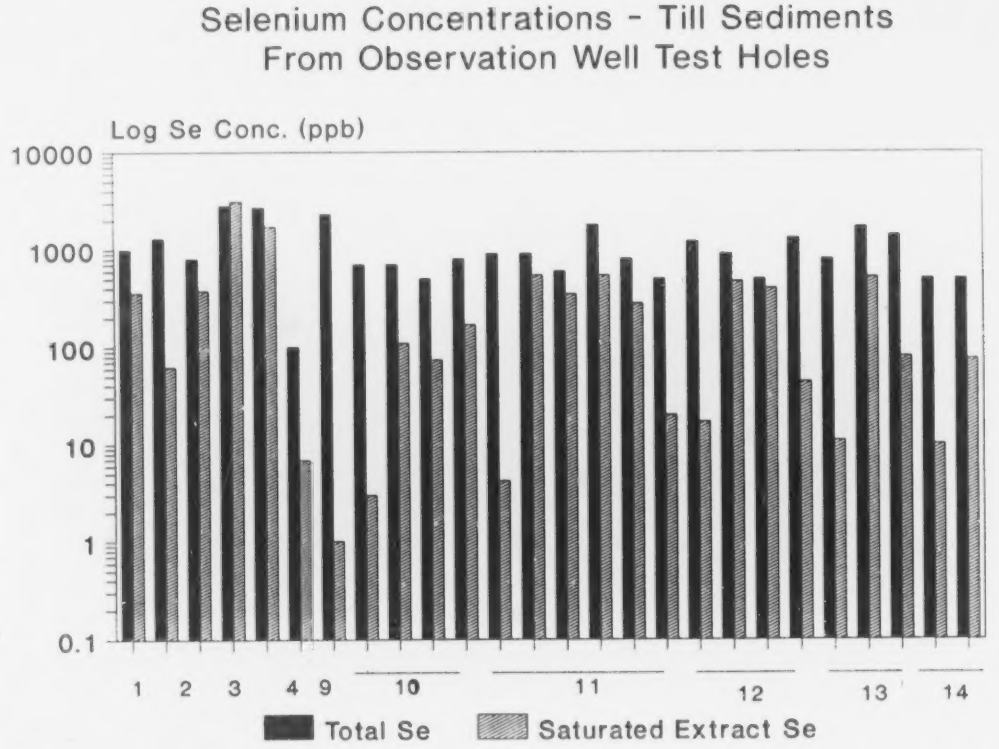
Figure 3

Table 2

SELENIUM CONCENTRATIONS OF TILL SEDIMENTS
FROM OBSERVATION WELL TEST HOLES

Well No.	Depth (feet)	Total Selenium (ppb)	Saturated Extract (ppb)
LAW- 1	10 -18	1000	360
LAW- 1	18 -21	1300	62
LAW- 2	9 -19	800	380
LAW- 3	7 - 9	2800	3100
LAW- 3	9 -19	2700	1700
LAW- 4	10 -17	100	6.9
LAW- 9	10 -16	2300	1.0
LAW-10	0 - 2	700	3.0
LAW-10	2 - 3.8	700	110
LAW-10	3.8 - 8	500	74
LAW-10	8 -20	800	170
LAW-11	0 - 2.5	900	4.2
LAW-11	2.5 - 4.2	900	540
LAW-11	4.2 - 5.5	600	350
LAW-11	5.5 -14.5	1800	540
LAW-11	14.5 -18	800	280
LAW-11	18 -20	500	20
LAW-12	0 - 2.2	1200	17
LAW-12	2.2 - 7.5	900	470
LAW-12	7.5 - 9.8	500	400
LAW-12	9.8 -18	1300	44
LAW-13	0 - 2.3	800	11
LAW-13	2.3 -18.7	1700	520
LAW-13	18.7- 20	1400	80
LAW-14	10 -13.3	500	10
LAW-14	13.3-19	500	75

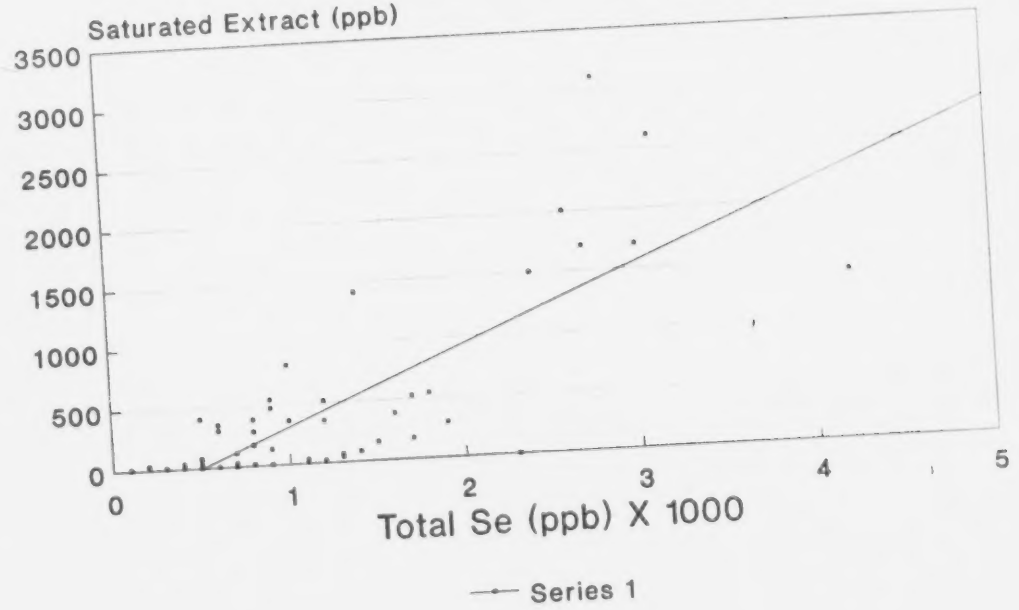
LAW, series from Lake Andes-Wagner



Data from Table 2: LAW 1-15

Figure 4

Selenium Concentrations - Till Sediments
Saturated Extract vs Total



Data from Tables 1 and 2

Figure 5

concentration values from MA-3 on table 3 were not included in minimum-maximum and average values shown above because they appear to be anomalous.

Selenium in Groundwater

Groundwater from Till Sediments

Table 5 lists selenium concentrations in groundwater obtained from till sediments. These concentrations are highly variable, ranging from 1.1 to 6,200 ppb. Although highly variable, the groundwater concentrations show a good correlation with the electrical conductivity and appear to be related to relative-barrier depth and screened-intake depth. For instance, in LAW wells 4, 9, 10, and 14 the screened portion of the wells are placed below the top of the relative barrier. Groundwater from these four wells had relatively low selenium concentrations. Conversely, LAW wells 1, 2, 3, 11, and 13 have their screened portion near or above the relative barrier and have relatively high selenium concentrations. Drawing firm conclusions from this apparent relationship should be avoided because the movement of soluble selenium in the soil profile is poorly understood. A further complication may be introduced by acknowledgement of probable lower than normal water tables at the time of sampling resulting from two consecutive years of low precipitation in the LAW-MII project areas. The possible effects of a low water table are unknown.

Groundwater from Non-till Sediments

Table 5 shows selenium concentrations in groundwater obtained from non-till sediments. The selenium concentrations range from 27 to 230 ppb in the six wells completed in non-till sediments. In all cases except for well M-8, where relative barrier depth is unknown, the screened zone of the wells are at or above the relative barrier. In contrast, till wells with the screened interval at or above the relative barrier have selenium concentrations that range from 560 to 4600 ppb. Also, examination of Table 5 indicates that, in general, selenium concentrations increase or decrease as the electrical conductivity increases or decreases.

Summary Discussion of Selenium Occurrence

Total selenium in till and non-till deposits in the LAW-MII project areas appears to be, at minimum, an order of magnitude higher than the drinking water standard of 10 ppb. With the exception of loess, where total selenium levels appear to be somewhat predictable, the total selenium concentration values are highly variable and unpredictable.

Saturation extracts from sediments in LAW-MII project areas appear to have some measure of predictability. In till, a combination of factors may control saturation extract selenium concentrations. This list is not necessarily comprehensive but includes:

1. till-matrix composition

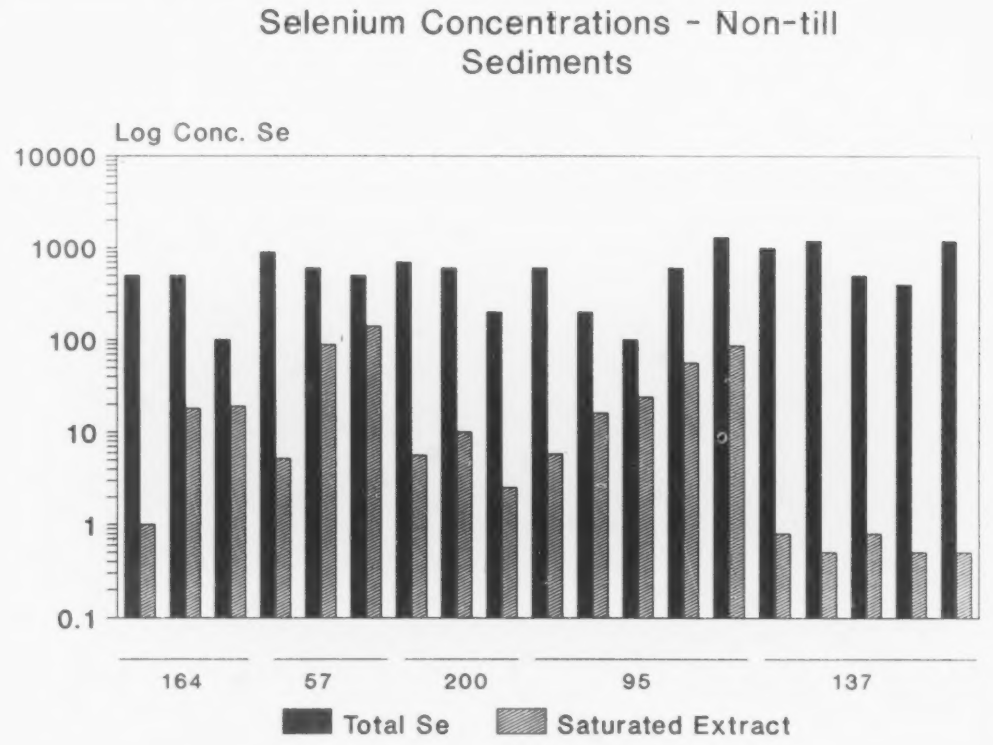
2. gross permeability (the weighted permeability of a representative cross-section of any soil zone)

Table 3

SELENIUM CONCENTRATIONS OF NON-TILL SEDIMENTS
FROM SOIL TEST HOLES

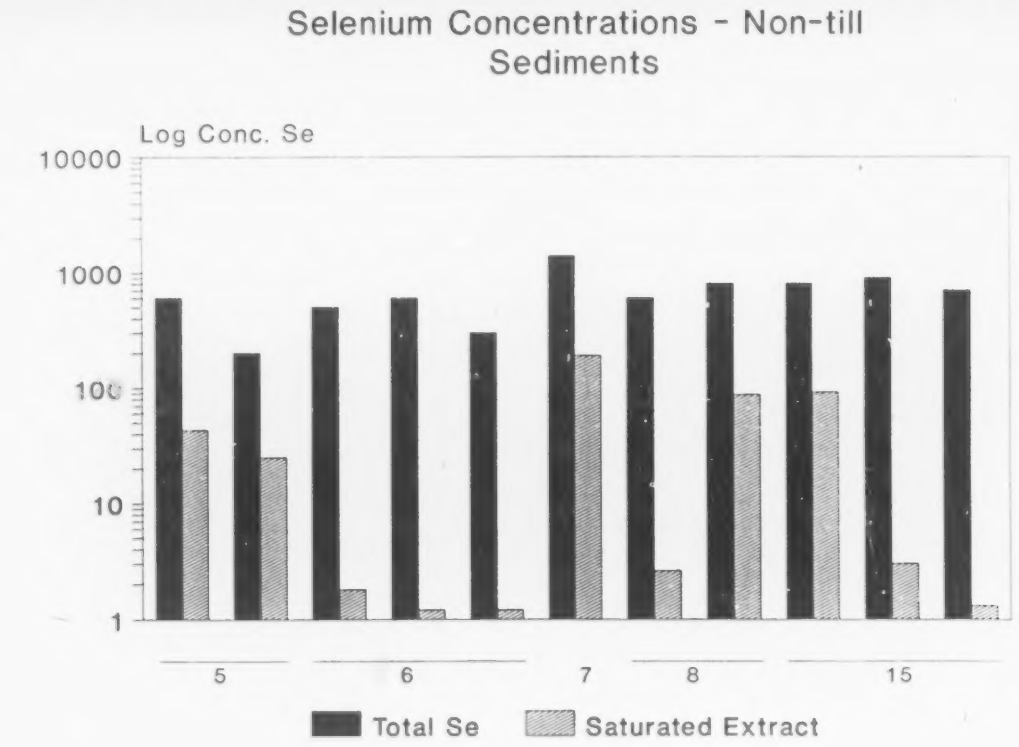
Site No.	Depth (inches)	Total Selenium (ppb)	Saturated Extract
*M-2A	26 - 58	600	47
*M-2A	84 - 120	600	7.7
*M-6	48 - 68	800	59
*M-7	0 - 18	700	3.7
*M-10	29 - 46	800	9.1
*M-10	81 - 120	600	140
*M-12	23 - 60	700	24
*M-13	20 - 64	900	53
*M-14	0 - 29	700	3.7
*M-15	50 - 99	500	4.6
M-3A	0 - 29	900	3.7
M-3A	29 - 48	NA	3200
M-3A	48 - 90	NA	8800
M-3A	90 - 108	NA	2500
M-3A	108 - 120	NA	2600
M-8	0 - 40	NA	7.5
M-8	40 - 92	NA	18
M-8	92 - 120	NA	7
LAW-164A	0 - 34	500	<1
LAW-164A	34 - 66	500	18
LAW-164A	66 - 106	100	19
LAW- 57A	0 - 35	900	5.2
LAW- 57A	35 - 60	600	88
LAW- 57A	60 - 98	500	140
LAW-200A	0 - 23	700	5.6
LAW-200A	23 - 55	600	10
LAW-200A	55 - 120	200	2.5
LAW- 95A	0 - 22	600	5.8
LAW- 95A	22 - 54	200	16
LAW- 95A	54 - 72	100	24
LAW- 95A	72 - 86	600	56
LAW- 95A	86 - 104	1300	86
LAW-137A	0 - 21	1000	0.8
LAW-137A	21 - 53	1200	<0.6
LAW-137A	53 - 96	500	0.8
LAW-137A	96 - 113	400	0.5
LAW-137A	113 - 120	1200	<0.6

M, series from Marty II
LAW, series from Lake Andes-Wagner
*, samples from loess



Data from Table 3:Sites LAW164A-LAW137A

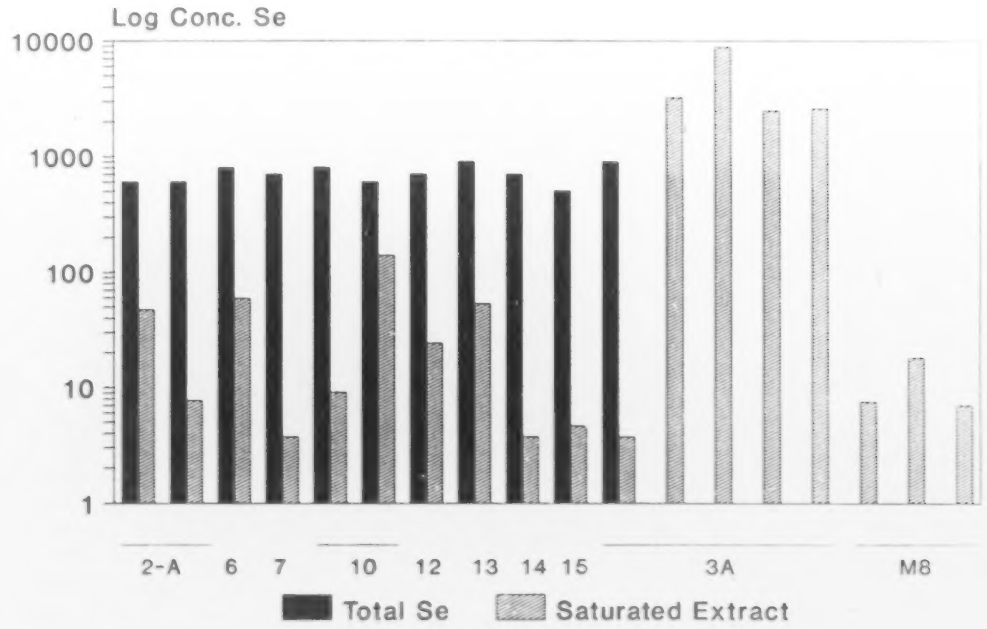
Figure 6



Data from Table 3: Sites LAW5 - LAW15

Figure 7

Selenium Concentrations - Non-till Sediments



Data from Table 3:Sites M-2A - M8

Figure 8

Table 4

SELENIUM CONCENTRATIONS OF NON-TILL SEDIMENTS
FROM OBSERVATION WELL TEST HOLES

Well No.	Depth (feet)	ppb Total Selenium	ppb Saturated Extract
LAW- 5	0 - 2	600	43
LAW- 5	2 - 5	200	25
LAW- 6	0 - 2.5	500	1.8
LAW- 6	2.5 - 4.5	600	1.2
LAW- 6	4.5 - 7	300	1.2
LAW- 7	0 - 7.5	1400	190
LAW- 8	0 - 2.5	600	2.6
LAW- 8	2.5 - 7	800	87
LAW- 8	7 - 20	800	92
LAW-15	0 - 8.3	900	3.0
LAW-15	8.3 - 30	700	1.3

LAW, series from Lake Andes-Wagner

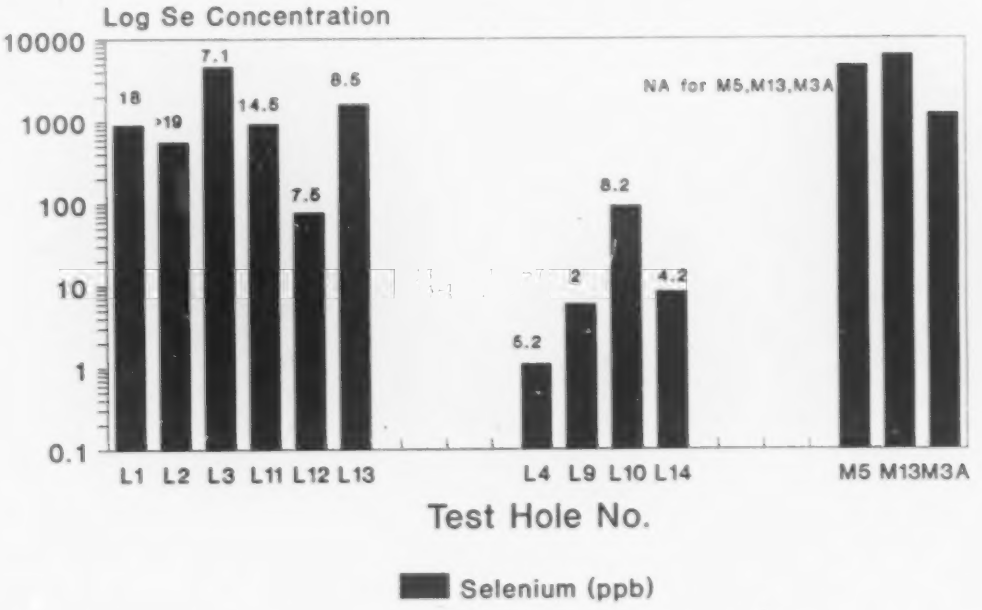
Table 5

SELENIUM CONCENTRATIONS IN GROUND WATER

Hole No.	Screen Depth (feet)	Selenium (ppb)	Conductivity umho/cm	Barrier Depth (feet)
		Till Sediments		
LAW- 1	8 - 13	900	> 5,000	18
LAW- 2	8 - 13	560	4,400	>19
LAW- 3	8 - 13	4600	> 5,000	7.1
LAW-11	8 - 13	930	> 5,000	14.5
LAW-13	8 - 13	1600	7,790	8.5
M- 5	8 - 13	4600	16,800	NA
M-13	8 - 13	6200	> 5,000	NA
LAW-12	8 - 13	77	4,000	7.5
M- 3A	10 - 15	1200	6,740	NA
LAW-10	13 - 18	91	1,725	8.2
LAW-14	13 - 18	8.3	2,700	4.2
LAW- 4	13 - 18	1.1	1,700	5.2
LAW- 9	18 - 23	5.9	1,050	2
		Non-Till Sediments		
LAW- 5	5 - 9	46	2,500	13
LAW- 6	8 - 13	210	3,600	17
LAW- 7	13 - 18	210	4,500	14.2
LAW- 8	8 - 13	230	2,700	>20
LAW-15	18 - 23	27	NA	>30
M- 8	8 - 13	140	3,440	NA

M, series from Marty II
LAW, series from Lake Andes-Wagner

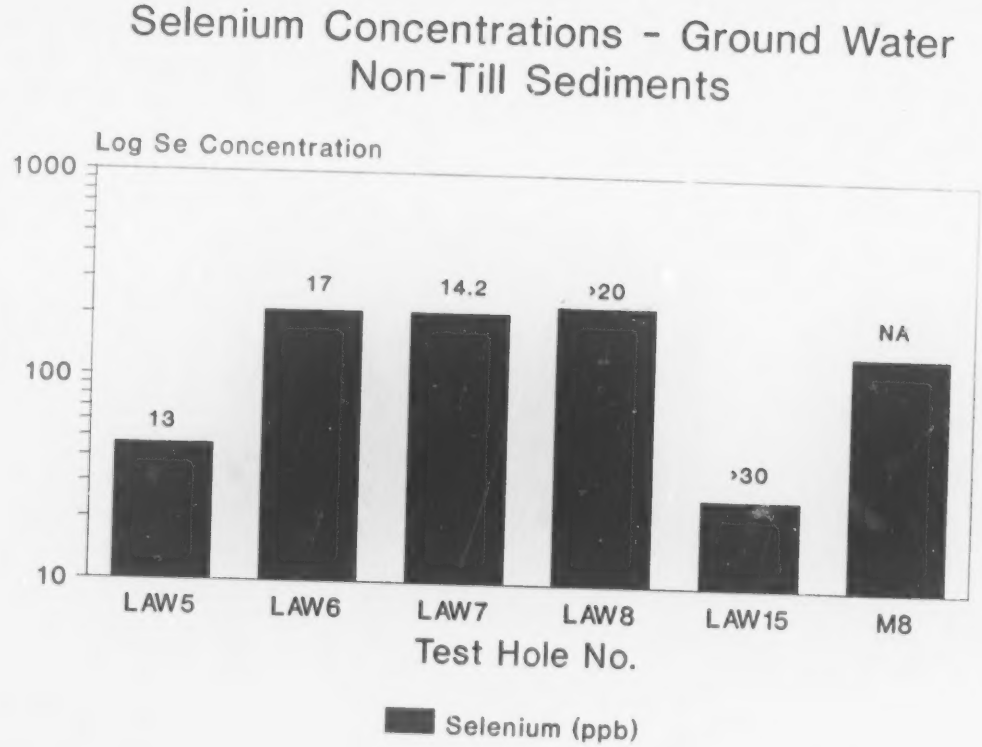
Selenium Concentrations - Ground Water Till Sediments



Data from Table 5

Number above or beside bar is depth to barrier in feet.

Figure 9



Data from Table 5

Number above bar is depth to barrier in feet.

Figure 10

3. zoned permeability due to abrupt and unpredictable texture changes

4. barrier depth

5. depth to groundwater

6. oxidation-reduction potential and pH

These factors and possibly others, and their relationships, are too poorly understood at this time to formulate a selenium-transport model. However, in till, it does appear that groundwater in till below the relative barrier is likely to be low in selenium concentrations.

In non-till sediments selenium concentrations from saturation extracts appear to be predictably low (generally less than 250 ppb), relative to till soils. Although hydraulic-conductivity data for the non-till sediments is generally absent, observation and experience suggests that the gross hydraulic conductivity of most of these sediments is significantly higher than in till. This factor may allow downward or lateral flushing of soluble selenium from the soil and sediment profile.

Selenium concentrations in groundwater generally reflect the relative concentrations of selenium from saturation extracts--lower saturation extract levels indicate lower selenium concentrations in groundwater. However, caution must be exercised in extrapolating this relationship to site-specific evaluations because the actual concentrations of selenium in groundwater may be two orders of magnitude higher than extract concentration levels.

Examination of table 5 shows what appears to be a relationship between electrical conductivity and selenium concentration in groundwater. In general, the higher the conductivity, the higher the concentrations of selenium. If this relationship can be verified within acceptable limits, it may be useful in providing a screening mechanism for relative selenium concentrations. It is also noteworthy that several conductivity values from till exceed 5,000 umho/cm and are as high as 16,800 umho/cm.

Groundwater and saturation extract concentrations of selenium from five wells, LAW 5, 6, 7, 8, and 15, have been referred to in the tables as representing non-till sediments. However, it should be noted that four of these sites, LAW 5, 6, 7, and 15, are also from currently irrigated sites. Even though the groundwater and saturation extract selenium concentrations from groundwater and sediments at these sites are similar to those from LAW-8, which were obtained from a nonirrigated site, some caution should be exercised when making conclusions based on comparison of these test-site results.

Despite the uncertainties for predicting groundwater selenium concentrations, two relationships may be valid based on the available data:

1. groundwater from till below the top of the barrier is more likely to be relatively low in selenium concentrations, and

2. groundwater from non-till sediments above the barrier is more likely to be relatively low in selenium concentrations.

Site Selection Rationale

It has been determined that a minimum of six sites, each containing approximately 640 acres, are necessary to provide representative data for the various physical differences found in LAW-MII project lands. These include two test sites each in the till, collapsed drift, and loess landform units. Important factors considered in the site-selection process are:

1. total acres of landform units in project areas

2. natural drainage conditions of landform units

3. predictability of selenium concentrations in groundwater from various geologic units

4. unique landform characteristics such as topography and slope, and

5. variability of physical conditions within a landform unit.

These factors and their relevance to site selection will be discussed in the following sections.

Till Sites

It is recommended that two study sites be constructed in till landform units, both to be located in the LAW project area. About one-third of the LAW project is located within this unit. In addition, most of the collapsed drift-till(?) landform unit, which comprises about 15 percent of LAW, is also probably underlain with till. A significant portion of the collapsed drift landform unit, which covers about 36 percent of LAW, may also best be characterized as till. Finally, as much as 15 to 20 percent of Marty II acres may also be till. Thus, it seems reasonable to expect that at least 50 percent and as much as 65 percent of LAW-MII project lands may prove to be best characterized as till. The till in both LAW-MII appears to be lithologically and texturally similar, and there does not appear to be a geographic preference for the occurrence of selenium. The controlling factors in respect to selenium concentrations in groundwater derived from till appear to be relative depth below the land surface in relation to the relative barrier. Thus two study sites are recommended in the general area of LAW 10, 11, and 12 that represent shallow (6 feet ±) and deep (14 feet ±) barriers. Two study sites in this area would be easily served with water from the main distribution line that will be required to serve the two recommended test sites in the collapsed drift landform unit.

Collapsed-Drift Sites

It is recommended that two study sites be constructed in the collapsed drift landform unit where as much as 36 percent of the LAW project area may be represented by non-till stratified sediments. One site should be located in that area of collapsed drift west of Choteau Creek. This particular portion of the collapsed drift is bounded by Choteau Creek on the east and a stream channel on the west and south. These drainages provide a potential natural drainage discharge point for groundwater. The ideal site would be where stratified drift is at least 20 feet thick. This would allow an assessment of

potential water quality in artificial drains from non-till sediments. It would also provide data for assessing the potential lateral flow component of groundwater. The groundwater quality data available did not indicate a geographic preference for selenium concentrations in ground water in collapsed drift. Thus a site is recommended near the southern end of that portion of the collapsed drift west of Choteau Creek that would be near the anticipated route of the main water supply line.

It is recommended that the second study site in the collapsed drift landform unit be constructed east of Choteau Creek. The site should be located with respect to topography so that there is a low potential for lateral flow to a natural outlet. A mixture of till and stratified drift underlying the test site would allow assessment for artificial drainage requirements and drainage-water quality. The available data do not suggest a geographic preference for groundwater quality under these site conditions. Thus a site east of Choteau Creek, in general alignment with the main supply line and close to Choteau Creek, that meets the physical site requirements would be preferable.

Loess Sites

Location of study sites in the loess landform unit presents special consideration because of several factors, primary of which is the scattered and irregular distribution and generally small proposed project acres in the MII area. This project land configuration makes it difficult or impossible to layout a study site on project lands using the ideal mile-square test plot configuration. Additionally, the regional topography and local relief raises the potential for regional lateral flow in the more permeable loess. Another important factor to consider is the potential impact of loess thickness when considered with the topographic and local relief factors mentioned above. It is felt that the potential drainage ramifications of lateral flow within the loess, where it is thicker, and lateral flow along the loess-till contact must also be addressed in the study-site location and configuration.

The diverse physical study-site requirements for the Marty II area probably could not be achieved using the ideal study-site configuration. However, this is not viewed as an obstacle because the potential groundwater lateral flow component is critical in this area. It therefore may be desirable to have the study-site configuration elongated normal to the regional slope. Since much of the project lands as a group are small parcels that are oriented southeast to northwest perpendicular to the regional slope, it is anticipated that specific sites can be located that will fulfill all objectives in the loess landform unit. The major criticism of this study-site configuration is that it will probably require more extensive water delivery service and may require various sized sprinkler systems.

Other Landform Units

No study sites are recommended in the collapsed drift-till(?) landform unit, because it is concluded that test results from the till or collapsed drift landform units would be representative of that area.

No study sites are recommended in the colluvium landform units because they occupy only a small percentage of the project lands, and it is unlikely that significant colluvium deposits exist in these areas. In the event that

significant colluvium deposits were found to exist, they almost certainly would be till-derived. Thus the drainage characteristics and water quality implication would be within the limits determined at the till landform test sites.

No study sites are recommended for the outwash-alluvium and alluvium-lacustrine landform units for several reasons. First, less than 10 percent of all project lands are contained in these two landform units. Second, because the assumed hydraulic conductivities of sediments underlying these units are significantly higher than in till, it is anticipated that their drainage requirements can be predicted using standard conventional artificial drainage criteria. Third, water quality from groundwater obtained from mostly non-till sediments appears to be predictable within limits as described elsewhere in this report. Finally, sediments characteristic of these landform units allow an active groundwater flow system. Thus an adequate groundwater sampling program should allow acceptable characterization of potential drainage water quality.

Site-Selection Process

The site-selection process will necessitate locating study sites that match the physical study site requirements to land availability and a willingness of the landowners to participate. This will require several steps. First, all current data will have to be analyzed to locate several potential plots of land for each site that may meet the physical requirements. Second, landowners will be interviewed to determine their willingness to participate in a demonstration program. Finally, after suitable land and willing landowners are identified, the lands will be prioritized for field study site verification. Study-site verification is required because of the variability of soils, sediments, and groundwater quality. Site verification will require soil sampling, test drilling, and water sampling to the degree needed to verify physical site requirements. Field testing will progress from highest priority lands to lower priority lands until a suitable plot of land is located for each study site.

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V. DRAINAGE

Objectives

This aspect of the study deals with verification of return flow quantities and quality. This quantification is important for several reasons: (1) drainage experts disagree on the requirements for artificial drainage in glacial till soils; (2) drainage requirements have a significant effect on estimated project costs when designing new projects; and (3) the amount of return flow realized will have a direct impact on the magnitude of water quality problems that may be experienced, and on the treatment or management methods that may be used to resolve those problems.

The following study objectives were developed to address the drainage quantity aspect of the study:

1. Determine how the natural system functions, and determine the capacity of the system to dissipate deep percolation.

   (a) Quantify upward movement of water in the soil profile under dryland and irrigated conditions.

   (b) Quantify net deep percolation under dryland and irrigated conditions.

2. Verify leaching requirement.

   (a) Quantify salt build-up in the soil profile.

   (b) Quantify system capacity to store salts, with respect to time.

3. Quantify artificial drainage requirements.

Water movement (flux) in the vadose zone will be tracked and quantified. Any net downward movement of water in the liquid form will produce a corresponding downward movement of soluble minerals, such as selenium. Where drains are installed and/or soil conditions are conducive to lateral flows, these minerals will emerge with the subsurface return flows, potentially in undesirable concentrations. In this study, various management practices will be investigated in an attempt to minimize downward flux, while recognizing that in any irrigation regime there must be sufficient net downward flux to maintain a stable salt balance in the root zone at a level which will not be detrimental to crop growth. This necessary flux, the leaching requirement, will be verified for the study sites. Also, the quantity of water that needs to be removed by artificial drainage will be estimated.

The quantity of water produced as return flows will have a major impact on the magnitude of potential water quality problems. Irrigation treatments and cultural practices will be investigated in an attempt to minimize the quantity of return flows while still maintaining leaching requirements. Return flow quantities will be closely monitored. If return flows significantly lower than previous estimates can be achieved, a means of projecting return flows under project conditions should be developed.

The quality of the return flows will be monitored for salts, selenium, and other constituents. Specific treated return flow discharge sites will be carefully planned and selected in year two or three of the program.

Off-Site Activities

An important aspect of this investigation will be to search out and analyze available data on irrigation of glacial till soils similar to those in the study area.

One source of information is a study Reclamation conducted on the Gosch farm near Selby, South Dakota , from 1978 through 1982. Reports prepared by the CENDAK Drainage Steering Committee in 1987 and 1988 should also be examined, as should data developed by the Canadian government on irrigation of glacial till soils in that country. Additional data may be available from South Dakota State University, South Dakota Department of Water and Natural Resources, and other agencies and organizations.

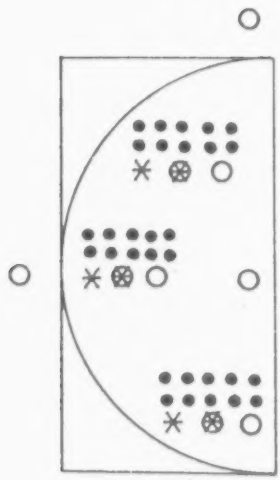
Irrigation of lands within the Lake Andes-Wagner and Marty II Units is not new. Several farms in or near the project areas have been irrigated, both with groundwater and Missouri River water, for several decades (see Figure 2). Recognizing limitations resulting from a probable lack of baseline data and operational records, these areas, particularly those irrigated with river water, will be investigated. Root zones, general soil conditions and production records will be analyzed, and potential relationships may possibly be developed by examining adjacent dryland areas, historical Missouri River water quality data, and operational records, as available.

Instrumentation

Instrumentation for this demonstration program will be state-of-the-art. Instrumentation recommended in this document may change if new technologies are developed prior to implementation of the study. The type and number of sensors may change during the progress of the study if new sensors become available, or if the need to increase the density of certain instruments is identified. At this time the measuring devices envisioned include transiometers, monitoring wells, neutron probe, undisturbed lysimeters, and weather stations. A typical arrangement of this instrumentation is shown on Figure 11. These will be adjusted at the time of actual installation to fit site conditions. Note that three clusters of monitoring instrumentation are located in each area of each study site to allow replication of data.

Transiometers, which are the union of a soil tensiometer and a pressure transducer, and neutron probe tubes will be installed at each instrumentation site to facilitate quantification of saturated and unsaturated flow.

Monitoring wells will be incorporated at each study site to track groundwater fluctuations, evaluate effectiveness of drains and to provide groundwater quality measuring points. In addition, deep wells will be located at selected sites to verify and monitor the presence or absence of trace elements at greater depths and in underlying aquifers. Surface waters in the project area will be monitored throughout the duration of the study.



80 Acres

- • Transiometer (one-foot depth intervals)
- ✳ Neutron probe access tube
- ○ Sampling / observation well
- ⊗ Undisturbed lysimeter

FIGURE 11. TYPICAL INSTRUMENTATION CONFIGURATION

Undisturbed lysimeters may be used at some locations to facilitate measurements of all parameters in a more controlled environment. They will be instrumented to track saturated and unsaturated flow and to obtain samples of leachate. Care will be taken in the placement of lysimeters to insure they are representative of the project area. Undisturbed lysimeters are only proposed as a possible instrumentation tool. This type of lysimeter is a relatively new development which could provide valuable data on leachate quality as well as water movement through the root zone. A reservoir (drain tile embedded in gravel) is constructed on the bottom of the lysimeter from which leachate samples are taken.

Full weather stations will be constructed at two study sites, one in the Lake Andes-Wagner area and one in the Marty II area. Each weather station will provide measurements of daily maximum and minimum air temperatures, precipitation, pan evaporation, wind velocity and direction, humidity, soil temperatures, frost depth, snow pack, and solar radiation. Modified weather stations will be located at all other study sites. These stations will provide data on temperature, precipitation, and evaporation.

Monitoring and Testing

Soil logs will be obtained at each study site on a 600 foot grid before irrigation begins. The depth of boring will be to 20 feet or to an easily identified hydraulic barrier, whichever comes first. If a barrier situation is questionable, it will be assumed not to exist. Samples will be taken from each zone and analyzed for total salts, chlorides, nitrates, and trace elements, including selenium. Sampling will be repeated during and at the termination of the study.

All return flows will be monitored for both quantity and quality.

Consumptive use will be estimated using a standard method such as Blainey Cridle, Jensen-Haise, or modified Penman. It will be important to maintain the same system throughout the project duration for consistency.

System efficiency and distribution efficiency will be determined using the Soil Conservation Service catch can method. Each center pivot system will be monitored at least once each irrigation season. Field application, including wind drift and evaporation will be measured at the delivery point to each system.

Drain Construction

Deep drains will initially be constructed on 1/2 of the T4 (induced drainage) quarter-section (see Irrigation Treatment section) at each study site using the data collected in the grid borings for design data. This will also be supplemented with in-place hydraulic conductivity tests as required. In addition, alternative drainage design and construction schemes will be investigated on the other half of the T4 quarters. Specific designs to be investigated will be determined during development of the study protocol. This is believed to be a sufficient amount of drainage for study purposes, and will minimize the amount of return flows which will be experimentally treated. Larger volumes of return flows might be difficult to work with in a demonstration program. If difficulties are encountered in dealing with the

return flows, irrigation applications can be stopped and the drains can be plugged. Plugging the drains and discontinuing water applications is intended to prevent drainage water from reaching the surface and joining surface waters.

Other drains will be constructed as needed, based on water table measurements. It will be necessary to construct subsurface interceptor drains at some of the sites to prevent untreated return flows from entering natural drainages, and to isolate the various study plots.

VI. RETURN FLOW MANAGEMENT

This aspect of the study deals with the potential for management (i.e., treatment and/or disposal) of drainage return flows. As noted, high levels of selenium have been found in soils in the study area. Therefore, there is a real possibility that return flows may contain elevated levels of selenium that could cause health problems for humans, fish and wildlife. However, due to the low permeability of the glacial till soils, return flows from these areas are expected to be minimal. On those soils containing more permeable material, return flows would be expected to be greater and could potentially contain high levels of selenium and other constituents.

Objectives

The main objectives of the study on return flows are to determine what type of water quality problems may arise due to return flows and to develop a method or methods for treating water containing all levels of selenium (low, medium, high) to acceptable levels for protecting human health and the environment. The research will examine all possible treatment methods regardless of economic constraints. Those methods that appear the most promising will be considered for on-site testing. In addition to the research on selenium, the overall goal of this program will be to elucidate the impacts of irrigation return flows on water quality to insure that water quality is not adversely impacted. No return flows in excess of current water quality standards will be discharged into existing water courses.

Scope of Work

This investigation of return flow management will be conducted in three phases. The three phase approach was designed to provide a logical method for gathering data and determining possible treatments.

Phase I - This phase will involve compiling existing data on the Lake Andes-Wagner and Marty II areas. Existing data on water quality; selenium levels in soils, water and biota; and quality of current irrigation return flows (if any) will be assembled. In addition, a thorough literature search will be undertaken to examine previous research on impacts of selenium in return flows. As a final step in Phase I, Reclamation will sponsor a symposium or work group on irrigation return flows and selenium to bring together experts from the United States and Canada. These experts will be briefed on the demonstration program and the study areas, and will be asked to provide recommendations on potential treatment methods to be included in the study.

Phase II - After careful examination of existing data, a literature review and consultation with experts, the need for additional data collection will be determined. This step will be used to increase the data base on pre-project conditions if it is determined that more data are needed from specific locations. The goal of this phase is to insure that sufficient background data exist on selenium concentrations in water, sediment, soil and biota in the demonstration area.

Phase III - The third phase of the demonstration study will be to utilize the information collected in Phase I and Phase II to determine treatment methods and locations for treatment sites. This research will examine return flow treatment methods, individually or in combination, and their effectiveness in treating irrigation return flows. If it is determined that treatment is not possible the drains can be plugged and irrigation eliminated from soils which present a problem. If at any time during the demonstration program it is determined that a treatment technology is not effective, the drains will be stopped until an alternate treatment can be implemented.

Human and fish and wildlife risk assessments will be conducted on each of the irrigated areas and on each of the treatments performed. The risk assessments and State and Federal water quality standards will be used to determine safe levels of selenium and other constituents in treated water and receiving water sediments. In addition, the risk assessments will be used to evaluate the potential hazards associated with return flows from each type of irrigated soil and return flow treatment.

VII. WATER APPLICATIONS

Objectives

Various irrigation treatments were considered. The objectives of this portion of the study are to:

1. Apply irrigation treatments consistently to all study sites.

2. Develop one treatment specifically to generate return flows to allow the study of return flow management techniques.

3. Develop a Supplemental treatment that will minimize net deep percolation and, therefore, return flows, in comparison to conventional irrigation practices.

T4 (Induced Drainage Treatment)

The objective of the induced drainage treatment is to increase the potential for deep percolation to accelerate the buildup of a water table and the need for a drainage system from which return flows can be monitored.

It is proposed that this treatment consist of frequent irrigations to maintain the soil moisture as near to field capacity as practical. To accomplish the objective may require periods of over irrigation (in excess of field capacity) and/or irrigation applications after the fall harvest.

The maximum application of irrigation water under this treatment will be limited by; sustaining crop growth, minimizing surface runoff, and the ability of the pivot system to operate under wet field conditions.

T2 (Supplemental Treatment)

The objective of the Supplemental treatment is to schedule irrigation applications to meet the crop water requirements and at the same time minimize the potential for deep percolation.

It is proposed that this treatment consist of water balance scheduling and delayed irrigations to maintain root zone storage capacity to optimize the use of natural precipitation. Best Management Practices relative to irrigation applications will be the focus of this treatment.

T3 (Conventional Treatment)

The objective of the Conventional treatment is to represent irrigation practices common to many areas. This treatment will be an attempt to fill the root zone to full capacity with each irrigation application. Evapotranspiration and leaching requirements for salinity control are to be met with this treatment. Annual soil sampling along with other collected data will be evaluated to ensure leaching requirements are met.

T1 (Dryland Treatment)

The objective of the dryland treatment is to provide a baseline comparison between dryland and the irrigation treatments.

VIII. FARM PRACTICES

Objectives

This aspect of the demonstration program involves the actual farming practices to be applied on the study sites. The objectives of this part of the program are twofold: (1) focus on irrigation and drainage BMP's that will minimize return flows and/or maximize return flow quality, and (2) apply these practices consistently to the study sites to reduce the number of variables to be accounted for during the course of the study.

The objective of Best Management Practices, sustainable agriculture, and research to minimize agricultural nonpoint source pollution are synonymous. Variables involved in meeting the objectives of these programs include the application of irrigation water, fertilizer, pesticides, and cultural practices. The application of irrigation water is the primary variable to be evaluated in the demonstration program, and thereby four irrigation treatments are included. To best evaluate the effects of irrigation on drainage return flow quality, it is necessary to standardize, as practical, all other practices over the study period so as not to introduce a changing variable. Fertilizer and pesticide use and other cultural practices will not be ignored. Prior to initiation of studies, the most current environmentally and economically sound practices will be selected. The various monitoring activities will also include data collection to evaluate the soundness of those practices selected for the demonstration program. The possibility of including additional studies relative to other practices (such as varying fertility rates, effectiveness of different pesticides, etc.) may be included, but only to the degree that they do not effect the results of the studies designed to meet the objectives of the demonstration program. Experts from the State Universities and the U.S. Department of Agriculture will be consulted when selecting all agricultural practices except the irrigation treatments. These practices will be consistent with the State's management plans for agricultural nonpoint source pollution.

Typical Study Site Layout

A proposed layout for each of the six study sites is shown in Figure 1. Actual layouts may vary due to i.e. ownership patterns, rights-of-way, existing nonagricultural land uses, etc.

The layout represents one section of land. The four irrigation treatments cover one quarter-section each. The alternative crop trials will be included on a minimum of two additional sites--one on glacial till soils and one on non-till soils.

A crop rotation of corn and soybeans is proposed for one-half of each of the irrigation treatments. The same crop will be grown on all treatments and all study sites for a given year of the study period.

Alfalfa is proposed for one-half of each irrigation treatment and will consist of establishing a newly irrigated alfalfa crop. Alfalfa will be grown on the same plots for the length of the study period.

The alternative crop trials will include a variety of irrigated alternative crops. As an example, sweet corn, popcorn, edible beans, and potatoes might be grown one year. These crops could be rotated the following year or another alternative crop placed in the rotation. Substitute crops placed in the rotation will have similar water requirements as the crop being replaced so as not to effect the drainage studies. Other potential alternative crops include lupine beans, onions, safflowers, and various fruit and vegetable crops.

Dryland corners will be planted to grasses and/or food plots to provide food and cover for wildlife.

Irrigation Management and Equipment

Three standard (130-135 acre) quarter-section pivot systems per study site are proposed. The pivot system on the induced drainage treatment would be operated on a one-half rotation only. Reclamation will lease the pivot systems to be used on the demonstration program.

All pivot systems are to be standard pivots of the same make and model. Estimated design criteria is to deliver 1,000 gpm (7.6 gpm per acre) at 65 to 70 psi. A variance will have to be obtained from the State Water Management Board for this equipment, since State law presently allows a maximum delivery of one ft^3/s per 70 acres (890 gpm; 6.6 gpm per acre) if deliveries are made through an enclosed pipe system. It was determined that this capability is necessary in order to fully investigate the various irrigation treatments, and to ensure the delivery rate is not a limiting factor in maintaining a strict scheduling program. Design criteria and sprinkler package may vary on the alternative crop trials pivot (see Farm Practices section) system. Special considerations will be made to equip the pivot on the induced drainage treatment to improve its operation under wet field conditions; e.g., high speed gear boxes. Each pivot system is to be equipped with approved water meters, which provide instantaneous flow measurements and total volume recordings. Uniformity tests will be performed on each pivot system annually. Application efficiency tests will also be performed under varying climatic conditions.

Water balance scheduling methods will be used to time irrigations. For the T3 (Conventional) and T4 (Induced Drainage) treatments, irrigations will be timed to maintain root zone soil moisture at or near field capacity during the growing season. Additional irrigations may be required under the T4 treatment during the nongrowing season in order to build up a water table and generate return flows. For the T2 (Supplemental) treatment and alternative crop trials, irrigations will be timed to allow depletion of the root zone soil moisture to provide storage for natural precipitation. The percent allowable depletion will vary based on crop type and stage of crop growth. Daily crop water use estimates will be made by either the Jensen-Haise, Blainey Cridle, or the modified Penman method. Irrigation timing and amounts will be forecasted. Weather data obtained from the nearest weather station will be used.

Available soil moisture will be measured using a neutron probe and transiometers installed in each of the three instrumentation sites for each treatment. Soil moisture will also be measured using the hand probe method,

tensiometers, and gypsum blocks, and compared to the neutron probe and transiometer measurements.

Fertility Management

Fertility management techniques will follow the selected BMP's for each given crop. Soils will be tested prior to planting each spring to determine fertilizer requirements. Plant tissue analysis will be performed just prior to the crop's peak nitrogen demand period to determine whether additional nitrogen fertilizer is needed. Plant tissue analysis will be performed more frequently on higher nitrogen use crops; e.g., potatoes. Plant tissue analyses will also be used to determine requirements for zinc, sulfur, and other trace minerals.

The quantity of nitrogen fertilizer applied at pre-plant will be kept to a minimum. The bulk of the fertilizer will be applied in side dress applications. Fertilizer requirements will be based on realistic yield goals for the area.

Animal manure will not be used as a source of fertilizer during the demonstration program. Also, fall grazing of livestock will not be practiced on the study sites during the demonstration program.

Pesticide Management

An integrated pest management approach will be used to prevent and control weeds, insects, and crop diseases. This approach utilizes combinations of cultural, mechanical, biological, and chemical practices based on economic thresholds and environmental soundness.

All fields will be scouted to identify and monitor the presence of pests. If predictions of potential damage due to pests exceed economic thresholds, the management approaches which fit the specific need will be evaluated and the best approach selected.

Cultural Practices

Cultural practices will be standardized between the six study sites as much as practical, including variety or hybrid for a given crop, tillage practices, planting dates, and plant populations.

Tillage practices which minimize soil erosion and are consistent with local conservation practices will be used. Other cultural practices consistent with local BMP recommendations will also be used.

The following data will be recorded for each crop: planting dates; plant populations; crop variety or hybrid; tillage practices; irrigation dates and amount; rainfall dates and amounts; harvest dates; yield; crop quality; fertilizer application dates, amounts, analysis, and application method; and pesticide application dates, amounts, chemical used and application method.

It is proposed that the above cultural practices data also be collected for the existing irrigation in the area.

IX. WETLAND/WILDLIFE ENHANCEMENT

Objectives

The objectives of wetland enhancement for this program are to create new habitat or improve existing habitat. Wetland enhancement can be accomplished utilizing several techniques. By employing program water from the Missouri River, existing or restored wetland basins can be filled and water levels managed to produce optimum habitat for waterfowl and other avian species. Wetland enhancement also involves establishing upland areas surrounding the actual basin. The undisturbed upland sites, in combination with the adjoining wetland basin, will provide ideal feeding and nesting habitat for waterfowl and other species. A monitoring program will be established to ensure that these wetland areas provide high quality habitat for migratory and nonmigratory wildlife.

The Prairie Pothole Region of the United States is one of the most important waterfowl habitats in the northern hemisphere. Wetlands in this region produce the majority of waterfowl in the lower forty eight states. Waterfowl are dependent on a large number of high quality wetlands to successfully complete their life cycle patterns necessary to maintain or decrease their numbers. Unfortunately, a large percentage of wetlands in the Prairie Pothole Region have been drained or altered and availability of quality habitat may have become a limiting factor for waterfowl.

The recent decline in waterfowl populations throughout the United States and Canada has prompted the governments of both countries to enter into an agreement to reverse this decline. The goal of the North American Waterfowl Management Plan is to bring waterfowl populations back to a level found in the 1970s.

In addition, the drought of 1988 and 1989 appears to be continuing and has severely impacted populations that are already at all time lows. Although waterfowl populations have evolved with drought on the prairies, the combination of drought, low populations, and direct and indirect stresses on the birds has seriously affected their ability to maintain populations. Lack of wetland habitat for staging, feeding, nesting and brood rearing has further diminished the nation's waterfowl populations.

The Lake Andes-Wagner, Marty II area is within the Prairie Pothole Region and enhancement of wetlands has the potential to increase and improve wetland habitat. Delivery of program water to existing basins, created wetlands or restored wetlands and establishment of upland habitat surrounding wetland basins will provide essential habitat for migratory waterfowl. Particularly important is the development of small (e.g. < 1 acre in size) wetlands. These small wetlands provide extremely important habitats for migratory and breeding waterfowl. Small wetlands thaw earlier than larger wetlands and are important for birds which arrive early on the breeding grounds (e.g. mallards). Early arrivals need a readily available and abundant source of protein, which they can obtain from small wetlands. A substantial number of small wetlands is important for high levels of waterfowl production because they provide these important food sources before larger wetlands are open. Enhancement of area

wetlands will also provide valuable habitat for other migratory birds as well as resident wildlife populations.

It may be beneficial to maintain the wetlands beyond the life of the demonstration project. Therefore, where possible, wetlands that can have water levels sustained without pumping water from the river should be established. The placing of snow fences or shelter belts appropriately in these wetland watersheds will insure that winter snows are available to supply water in the spring.

Scope of Work

A three phase approach has been developed for the wetland enhancement aspect of the demonstration program. This approach will permit researchers to plan the enhancement package, identify specific sites and implement water delivery to the selected sites. This phased approach will also insure that all environmental considerations are taken into account before water is delivered to a basin.

Phase I - This step will involve compiling data on basins potentially available for enhancement. Researchers will coordinate with personnel from the SD Game, Fish and Parks Department, U.S. Fish and Wildlife Service and other State and Federal agencies to identify areas for enhancement. Utilization of National Wetlands Inventory maps as well as consultation with local landowners will help in evaluating areas that have potential for enhancement. During this phase there are several important factors that must be considered in order to create optimum wetland habitat. The following recommendations are based on recent research in wetland ecology.

1. Enhancement efforts will focus on creating or restoring many small wetland areas as opposed to one or several larger wetlands. Consideration will be given to water management capability (outlets, etc.).

2. Water delivered to wetland basins will be Missouri River water and not return flow water. This will alleviate any potential problems which could result from poor quality return flow.

3. An extensive monitoring program will be developed to ascertain baseline conditions of the selected sites. Monitoring data will insure that sites do not currently contain contaminants that are a threat to wildlife and fish.

4. Wetland basins selected for the program should, if possible, be near the study sites within the Lake Andes-Wagner, Marty II program boundaries if suitable areas exist. Areas outside but close to the program areas will be considered if they meet habitat quality and water accessibility criteria.

Phase II - This step of the process will utilize the data collected in Phase I to select sites for enhancement. At present there are several basins which have been identified by local landowners and the U.S. Fish and Wildlife Service as potential candidates for fisheries and recreation as well as for wetland enhancement. These include: South Lake Andes, Owens Bay (an arm of Lake Andes), and Red Lake. However, selection is not limited to these basins

and Phase I data collection must be accomplished before the final sites are selected for wetland enhancement.

Phase III - This step will involve delivering program water to the selected wetland basins. The monitoring program described in Phase I will be continued on these wetlands to insure the overall health and integrity of the wetlands. Should monitoring disclose problems resulting from the water delivery, the water deliveries would be terminated and an effort made to ameliorate harmful effects.

In addition to the wetland oriented phase of the enhancement, it is recommended that the study sites be monitored and evaluated to determine the effect of irrigation practices, including dryland corner management, on wildlife species.

X. LEASES AND RIGHTS-OF-WAY

Objectives

Lease arrangements will have to be entered into with participating landowners which are fair to all parties. Landowners will have to be compensated for the inconvenience of having study activities take place on their lands. Reclamation will require unlimited access onto the study lands. A method for fair and equitable marketing of crops grown on the study area will have to be established, and temporary easements or rights-of-way will be needed to accommodate program facilities, such as pumps and pipelines.

Agricultural Leases

Leases for the selected study sites will be entered into with participating landowners. Leases would be for the duration of the construction and data collection periods of the program. The following guidelines should be followed relative to the development of leases:

1. Reclamation will lease land at fair market value plus reasonable compensation for inconveniences to be encountered by the landowner.

2. Reclamation will supply water, delivery systems, pivot systems and drains.

3. Reclamation will operate and maintain irrigation systems.

4. Reclamation will supply seed, fertilizers, and pesticides, and will make standardized equipment available.

5. Reclamation will determine crop rotations and cultural practices.

6. Reclamation will require unrestricted access on leased lands.

7. Reclamation will contract with landowner and/or custom operators to accomplish agricultural work. Work will be done as prescribed by the study manager.

8. No livestock grazing will be allowed on the study sites during the course of the study.

9. At the end of the study period, leased lands will be returned as practicable to pre-study conditions.

10. Demonstration program authorizing legislation should contain an exemption from ASCS crop acreage base limitations for lands included in the demonstration program.

Crop Marketing

Several alternative methods of dealing with crops grown on the study areas were considered. Consideration must be given to assuring that landowners will realize incomes from the study sites at least equal to what would have been

realized under dryland farming conditions. That income should not be excessively lower or higher than average areawide incomes realized from dryland farming. This issue is complicated in that it is likely that no crops, or at least poor crops may be grown under the induced drainage treatment; yields are expected to be equal to or higher than the local average under the supplemental and conventional treatments; specialty crops to be grown, if successful, could be very valuable; crops grown under the demonstration program, particularly specialty crops, could disrupt local markets.

It was determined that the simplest, most equitable way to deal with this issue is to have Reclamation lease the study sites land at fair market value, with no compensation or allowance for crops to be grown. Any crops that are grown then belong to the demonstration program. The study manager would sell the crops grown on the study sites to the highest bidders, who could be responsible for harvesting the crops. A variation to this strategy would be to allow the landowner the first right to purchase the crops at a predetermined price or pricing formula. Guidelines for harvesting the crops would be established so that yields can be documented and samples can be collected for trace element analyses. Income from these sales could be placed in a special account which the study manager would be responsible for, with administrative oversight provided by the Oversight Committee. Funds from this account could be used by the Study Manager for minor expenses related to the demonstration program. This account would be available for audit at any time, and at the termination of the demonstration program, any remaining funds would be returned to the general treasury of the United States. Another variation would be to have funds received from sale of the crops returned to the United States Treasury, but be earmarked for use on the demonstration program.

Rights-of-Way

Temporary easements or rights-of-way will have to be obtained for placement of pipelines, pumps, and perhaps other project features. Reclamation, in cooperation with LAWWSI and the Tribe, will obtain these rights-of-way.

XI. STAFF REQUIREMENTS AND OVERSIGHT

Reclamation will be responsible for the accomplishment of the demonstration program. It is estimated that a full-time Study manager and a staff of three to five employees would be required. Qualified local residents may be available as staff. This staff should be located in centralized, temporary facilities in the study area (e.g., the BIA may have some office space and clerical staff available). The Study Manager will be responsible for development and implementation of the study protocol, for recommending changes to the study protocol, and for preparation of annual reports and a concluding report.

An Oversight Committee made up of representatives of the agencies and organizations that participated in the development of this document will be established to provide technical and administrative oversight to the Study Manager. This committee should meet at least quarterly, and will be responsible for approving significant changes to the study protocol; for oversight of the sale of crops grown on the study sites; and for reviewing ,approving, and distributing reports generated from the demonstration program. Interagency agreements will be executed which will include a definition of responsibilities for this committee and individual agency involvement.

It is proposed that, under direction of the Study Manager, participating landowners or custom operators will perform all agronomic practices; i.e., tillage, planting, application of fertilizer and pesticide through a lease/easement agreement or separate contract.

It is proposed to contract the soil testing and plant tissue analysis for making fertilizer recommendations with a reputable testing laboratory established in the business of making these recommendations.

XII. SCHEDULE

YEAR ONE

1. Finalize Plan of Study, including an environmental analysis
2. Seek authorization
3. Develop agreement to establish Oversight Committee

YEAR TWO

1. Locate temporary office and storage facilities
2. Assign Study Manager and some key staff
3. Begin preparation of study protocol
4. Complete study site selection
   a. Locate and verify sites
   b. Leases
5. Select sites for pumping plants
6. Develop distribution system layout
7. Develop construction specifications
8. Conduct appraisals; obtain rights-of-way
9. Compile and analyze existing trace element data
10. Continue and expand trace element baseline data collection
11. Begin gathering and analyzing data from presently irrigated and non-irrigated till lands
12. Begin selection of return flow treatment methods
    a. Literature review
    b. Consultation with experts
13. Inventory wetland basins
14. Obtain permits necessary for construction of facilities
15. Complete NEPA compliance and Fish and Wildlife Coordination Act compliance.

YEAR THREE

1. Assign staff
2. Construct pumping plants, distribution system and drains
3. Lease and install irrigation equipment
4. Select and construct return flow treatment facilities
5. Select wetland/wildlife enhancement sites
6. Continue baseline data collection
7. Install necessary laboratory equipment
8. Establish crop marketing group and procedures
9. Execute necessary contracts
   a. Custom operators or landowners
   b. Equipment
   c. Seed, fertilizers, pesticides
10. Complete study protocol

YEAR FOUR

1. Demonstration program data collection
2. Prepare annual report

YEAR FIVE

1. Demonstration program data collection
2. Prepare annual report

YEAR SIX

1. Demonstration program data collection
2. Prepare annual report

YEAR SEVEN

1. Demonstration program data collection
2. Prepare annual report

YEAR EIGHT

1. Demonstration program data collection

YEAR NINE

1. Restoration of sites
2. Prepare concluding report and recommendations

XIII. ESTIMATED PROGRAM COSTS

The total cost of the proposed demonstration program is estimated to be $30 million. Construction costs for project facilities is $19 million. Annual costs for the study operation total $11 million, over the 9-year project schedule outlined on pages 47 and 48.

Project Plan: The plan is designed to deliver irrigation water to four test sites in the Lake Andes-Wagner Unit and two test sites in the Marty Unit. Each test site contains three center pivot sprinkler systems, irrigating 135 acres each. One additional quarter-section will be irrigated in both the Lake Andes-Wagner and the Marty Units. The test sites are expected to be located in year two of the study as further soils information and agreements with land owners is obtained. For the purpose of this cost estimate, test sites were located according to available land classification information.

The pumping plants and pipeline are designed to deliver 1000 gal/min to each center pivot sprinkler. It is assumed that all pivots will be operated simultaneously. An additional 10 percent capacity is designed into the system to account for pump wear. Water for the Lake Andes-Wagner Unit will be pumped from Lake Francis Case to 13 (135-acre) sprinkler systems irrigating a total of 1755 acres. The design capacity of this system is 32 ft^3/sec. Water for the Marty Unit will be pumped from the Missouri River about 8 miles below Fort Randall Dam, supplying 17 ft^3/sec to 7 (135-acre) sprinkler systems irrigating 945 acres.

Additional pipelines have been included in the project design to deliver water to several wildlife areas along the pipeline route in the Lake Andes-Wagner area. Water will be delivered to these areas in the off peak periods so no additional pipeline or pumping capacity would be required.

Construction Costs

Construction costs for project facilities is estimated to be $19 million. The cost estimate was conducted at appraisal level and represent January 1990 price levels. Project facilities include main and booster pumping plants, distribution pipelines, and field instrumentation as discussed below.

North Bay Pumping Plant: The North Bay Pumping Plant will serve four sections in the Lake Andes-Wagner area by pumping water from Lake Francis Case. The outdoor type plant will be located on the North Bay site proposed in the Lake Andes-Wagner Planning Report for the main pumping plant. The plant will have a capacity of 32 ft^3/sec and a total dynamic head of 290 feet. Water will be drawn through submerged intake screens designed to keep approach velocities to around .4 feet/second.

Marty II River Pumping Plant: This plant is located about 8 miles below Fort Randall Dam on the east bank of the Missouri River in section 12 T., 34 N., R. 10 W. The Plant will have a capacity of 17 ft^3/sec and a total dynamic head of 455 feet, serving approximately two sections in the Marty area. Water will be drawn from the river through screens similar to the ones used at North Bay.

Booster Pump Stations: Four booster pumping stations are utilized in the Lake Andes-Wagner area to supply irrigation water to the test sites. Two of the booster stations have a capacity of 32 ft^3/sec while the remaining two have a capacity of 7.3 ft^3/sec. Total dynamic head fore these plants range from 270 to 176 feet.

Distribution Pipelines: The pipeline distribution system consists of 34 miles of buried PVC pipe ranging in diameter from 26 through 15 inches. Serving the four test areas in the Lake Andes-Wagner area requires 27 miles of pipe. Four miles of pipe serve the two test sites in the Marty area. The pipeline will parallel highways and county roads as much as possible to minimize impacts to the environment and adjacent land owners and to minimize the expense of obtaining right-of-way easements. Over three additional miles of pipeline were included to supply water to Lake Andes, Lake Andes National Wildlife Refuge (Owens Bay) and Red Lake.

Drainage: A subsurface, closed pipe, drainage system is provided to remove groundwater, preventing the water table from encroaching on the root zone of the growing crops. It is anticipated that one quarter-section (135 irrigated acres) of each test site in the Lake Andes-Wagner area will require drains while two quarter-sections (270 irrigated acres) in the Marty area will require drains. Over 30 miles of drain pipe are estimated to installed, diameters ranging from 6 to 8 inches.

Instrumentation: Instrumentation as is provided for all irrigated quarter-sections of the test sites. Instrumentation layout was in accordance with Figure 11.

Annual Costs:

Annual costs were estimated based on the project schedule found on pages 47 and 48 and are estimated to be $11 million over the 9-year life of the study. For program cost estimating, it was anticipated that a field office will be established in year three of the study and have a full staff of six by year four when the demonstration program begins full operation. Annual costs include personnel, field office operational, laboratory testing and equipment, steering committee, farm operations and return flow treatment costs.

XIV. ATTACHMENTS

This chapter contains the following:

A. List of Preparers of this report

B. Technical Reviewers

C. Environmental Analysis

35-872 O - 90 - 4

A. List of Preparers

Mr. Dennis Breitzman
Bureau of Reclamation
Missouri-Souris Projects Office
P.O. Box 1017
Bismarck ND 58501

Mr. Rick Nelson
Bureau of Reclamation
Missouri-Souris Projects Office
P.O. Box 1017
Bismarck ND 58501

Mr. Mike Marohl
Bureau of Reclamation
Missouri-Souris Projects Office
P.O. Box 1017
Bismarck ND 58501

Mr. Lawrence Kiyukan
Bureau of Indian Affairs
Yankton Agency
Wagner SD 57380

Mr. Dick Ruelle
U.S. Fish and Wildlife Service
P.O. Box 986
Pierre SD 57501

Mr. John Kirk
South Dakota Department of
Game, Fish and Parks
445 East Capitol
Pierre SD 57501

Mr. Assad Barari
South Dakota Geological Survey
Science Center
University of South Dakota
Vermillion SD 57069

Mr. Lynn Hedges
South Dakota Geological Survey
Science Center
University of South Dakota
Vermillion SD 57069

Ms. Pam Bonrud
South Dakota Department of
Water and Natural Resources
523 East Capitol
Pierre SD 57501

Mr. Greg Powell
South Dakota Department of
Water and Natural Resources
523 East Capitol
Pierre SD 57501

Mr. Louis Archambeau/
Mr. Ray Cournoyer
Yankton Sioux Tribe
P.O. Box 248
Marty SD 57361

Mr. Leo Holzbauer
Lake Andes-Wagner Water
Systems, Inc.
118 South Main
Wagner SD 57380

B. Technical Review Committee

Mr. Jim Verzuh (Chairman)
Regional Engineer
Bureau of Reclamation
Great Plains Regional Office
P.O. Box 36900
Billings MT 59107-6900

Mr. John Boehmke
Division of Environmental Affairs
Bureau of Reclamation
Great Plains Regional Office
P.O. Box 36900
Billings MT 59107-6900

Ron Severson/Steve Wilson
Geologic Division
Environmental Geochemistry Branch
U.S. Geological Survey
Box 25046, M.S. 973
Denver Federal Center
Denver CO 80225

Ms. Toney Ott
Water Management Division
Environmental Protection Agency
Region VII
999 18th Street Suite 500
Denver CO 80202-2405

Mr. Tom Jackson
U.S. Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver CO 80225

C. Environmental Analysis

Description of Project

The Lake Andes-Wagner/Marty II Demonstration Program is designed to gather data to resolve two issues related to irrigation of soils in the projects area. These two issues need to be addressed prior to development of full scale irrigation in the area. They are:

1. What are the drainage requirements on glacial till soils? This is an issue among drainage experts and centers around the movement of water through soils with very low hydraulic conductivities.

2. What impacts would subsurface drainage return flows containing potentially high concentrations of selenium and other trace elements have on surface and ground water quality.

These issues were first raised in 1988 as a result of Congressional hearings on authorization of the 45,000-acre Lake Andes-Wagner Unit and the 3,000-acre Marty II Unit. Lack of a completed planning report for the Marty II Unit prompted further investigations of trace element concentrations in the soil and groundwater in the Marty area, and ultimately in the Lake Andes-Wagner project area. Data collected to date indicate that the trace element selenium is present throughout the entire project area in concentrations ranging from below detection to a few thousand parts per billion (ppb). The glacial till soils in the area have selenium concentrations that are one to two magnitudes of order higher than concentrations on non-till soils in the area.

The demonstration program described in the Plan of Study (POS) would require construction of temporary facilities (pumping plants, pipelines, drains, treatment facilities) to permit irrigation of six study sites in the Lake Andes-Wagner/Marty II Units. Four test sites would be located on glacial till soils in the Lake Andes-Wagner area, and two sites would be located on loess soils in the Marty II area.

Two separate pumping plants would likely be required for delivery of Missouri River water. One pumping plant would be located in the north arm of Lake Francis Case and would serve study sites in the Lake Andes-Wagner area. The other pumping plant would be located adjacent to the Missouri River near the Marty II sites for delivery of water to test sites in the Marty area.

Each study site will be 640 acres, divided into eight, 80-acre quadrats. Three different irrigation treatments and various cropping patterns will be applied to six of the quadrats at each site. Two quadrats in each site would be dryland treatments used as controls. Monitoring equipment and observation wells will be installed in each study site (see Figures 1 and 3 in the POS for irrigation treatments and instrumentation layout).

The three irrigation treatments (supplemental, conventional and induced drainage) are designed to determine the movement of water within the soil profile and the quantity and quality of water in return flows.

The Supplemental irrigation treatment is essentially the current agricultural practice in the area. Water needed to supplement natural precipitation will be delivered to meet crop requirements during the growing season.

The Conventional irrigation treatment would deliver a volume of water needed to keep the soil profile at full field capacity during the growing season. This application would meet crop requirements and provide water needed for deep percolation to leach salts from the root zone.

The Induced Drainage irrigation treatment would deliver a volume of water to the soil profile that would saturate the soil and result in return flows. This may require water delivery during the frost free period that is well in excess of any water required for crop production. The sole intent of this treatment is to accommodate water quality studies by forcing water through the soil profile to generate return flows. Drains will be constructed on at least one-half of each induced drainage quadrat.

The Dryland treatment would be used as a control. The same instrumentation would be placed on these quadrats but no irrigation water would be provided. Water for crop production would come entirely from natural precipitation.

Cropping practices on all quadrats are designed to emulate those currently being used on irrigated and non-irrigated lands in the area. Cultural practices will be standardized on all study sites to minimize variables associated with farming methods. The primary crops grown in the area are corn, beans, alfalfa, and small grains. In addition, some specialty crops are grown (e.g. potatoes, popcorn), and smaller test quadrats would be set up on additional sites, one on glacial till and one on non-till, to investigate drainage requirements and uptake of selenium by these crops.

The demonstration program would also examine treatment methods for subsurface drainage return flows. Emphasis will be placed on techniques for removal of selenium, but any treatment will also be designed to insure that return flows meet all State and Federal water quality standards.

Existing Environment

There are six major landform units within the project area: till, collapsed drift, alluvium-outwash, alluvium-lacustrine, loess, and colluvium. The distribution of these landform units in the Lake Andes-Wagner/Marty II Units is shown in the POS (Fig.2).

A primary area of concern is the level of selenium in soil and water in the project area (preliminary data are attached to the POS). Both till and non-till sediments are characterized by elevated and highly variable concentrations of selenium. The average concentration of selenium in till sediments is 1187 ppb, and in non-till sediments is 656 ppb. In addition, the concentrations of extractable, i.e. water soluble, selenium in the soils is also elevated and variable. The extractable selenium in the till soils ranged from <0.6 to 3100 ppb (ave.=424 ppb). For non-till soils the extractable selenium ranged from <0.6 to 190 ppb (ave.=30 ppb).

Data collected on shallow groundwater indicate that concentrations of selenium are elevated and highly variable in groundwater from till and non-till

sediments. In general, selenium concentrations in groundwater reflect the concentrations of selenium in the saturation extracts, but this relationship may not always show a high degree of correlation. At some sites the actual concentration in groundwater may be two orders of magnitude higher than extract concentrations. Selenium concentrations in ground water from till soils range from 1.1 to 6200 ppb. In wells on non-till soils, concentrations of selenium range from 27 to 4600 ppb. Preliminary data indicate that selenium is absent from or occurs in relatively low concentrations in deep aquifers under glacial till soils; i.e., aquifers below the relative barrier.

There are two relationships between soil type and ground water selenium concentrations that appear to be valid based on the available data. First, ground water from till soils below the top of the relative barrier is more likely to be relatively low in selenium. Second, ground water from non-till sediments above the relative barrier is more likely to be relatively low in selenium.

Data on surface water quality have been collected by the U.S. Geological Survey as part of their Water Resources Data collection program. Data exists for several sites in or near the proposed research area including: Missouri River, Lake Andes below Lake Andes, SD, Lake Andes near Lake Andes, SD, Choteau Creek.

Water quality in the Missouri River is generally good. Total dissolved solids concentrations range from approximately 500 to 570 mg/l. Selenium concentrations vary from less than detection to 2 ug/l. Dissolved nutrient concentrations (nitrate and phosphate) are less than 0.04 mg/l.

Several sites in the USGS program show concentrations of nutrients and trace elements that reflect high levels of dissolved constituents. In general, water quality in these areas is poorer than the Missouri River.

Nitrate and phosphate concentration in Choteau Creek near Wagner are indicative of eutrophic systems. Nitrate levels as high as 2.75 mg/l and ortho-phosphate levels of 1.0 mg/l have been recorded. Total dissolved solids concentrations exceeding 2200 mg/l have been recorded. Selenium concentrations in Choteau Creek ranged from less than detection to 26 ug/l.

Lake Andes exhibits a pattern similar to Choteau Creek. Nutrient levels are at times extremely high. Nitrate levels have exceeded 3.0 mg/l and ortho-phosphate concentrations have exceeded 0.3 mg/l. Total dissolved solids as high as 2100 mg/l have been recorded. Selenium concentrations vary from less than detection to 60 ug/l.

The U.S. Fish and Wildlife Service has collected data on trace element concentrations in bird tissue, bird eggs and fish from several areas in the LAW-MII area. Selenium levels in eggs of least terns (Sterna antillarum) and piping plovers (Charadrius melodus) were within or exceeded the range of concentrations associated with embryo deformity or mortality in other bird species. It is likely that the selenium is picked up by nesting females from foods acquired in the surrounding area.

Coot eggs collected from Owens Bay (Lake Andes National Wildlife Refuge) revealed selenium concentrations between 1.2 and 6.2 mg/kg dry weight. At a concentration of 6.2 mg/kg, embryo mortality or chick deformity could occur.

Fish samples were collected from Lake Andes and Choteau Creek. Selenium concentrations in tissues were elevated. The range of concentrations in fish from Choteau Creek was 2.56 to 27.4 mg/kg and in fish collected from Lake Andes 1.38 to 10.10 mg/kg.

Currently, irrigation from groundwater sources is occurring in the Lake Andes-Wagner area. Water from ground water wells is generally higher in total dissolved solids than water from the Missouri River. Several landowners have been irrigating in this manner for over thirty years. Relatively little data exists on the effects of this irrigation on the quality of water in the area, or on salt buildup in the irrigated soils. These potential effects would be studied and documented in the demonstration program.

Data collected to date on soils, water and biota illustrate several important factors regarding the existing environment in the proposed study area.

1. Concentrations of the trace element selenium are highly variable between sites and range from below detection to extremely high. Selenium is naturally occurring in the area and reaches the aquatic system via leaching processes.

2. Some birds and fish have elevated concentrations of selenium that may result in reproductive problems. Selenium contamination may cause embryo mortality or deformity in chicks or larval fishes. It is believed that organisms in this area acquire a selenium load from food sources in the surrounding area.

3. Further studies and data collection are needed to determine the magnitude of selenium contamination that exists at present.

4. Additional data are needed on the impacts of irrigation on salt buildup in the soils.

Environment With Research Project

A Final Environmental Statement (FES 85-36) on the proposed Lake Andes-Wagner Unit was filed in September 1985. An Environmental Assessment was completed for the Marty II Unit in 1990.

Adverse impacts which might result from construction of demonstration program facilities have not been quantified, but would be expected to be minimal. Facilities would include temporary pumping plants, buried pipeline, and subsurface drains. The buried pipeline would parallel roadways to the extent possible. Areas of significant impact; e.g., wetlands and cultural resources sites, could be avoided. Study sites would be located on existing agricultural lands, so that grassland or existing wetlands would be avoided or mitigated if disturbed. Finally, the annual estimated diversion of 5,000 acre-feet of water from the Missouri River is not be significant as the average annual flow of the Missouri River at Ft. Randall Dam is 18,000,000 acre-feet.

Several adverse impacts could result from implementation of the research program. These impacts are directly related to the current levels of selenium in soils, the effects of irrigation on the mobilization of selenium into the environment, the impact of irrigation on salt buildup in soils and the potential exacerbation of existing selenium contamination in fish and wildlife.

The potential exists for the demonstration program to increase the selenium levels in the aquatic environment for the short-term through the production of return flows. One objective of the study is to induce drainage to determine the quantity and quality of return flows. If these return flows are high in selenium and would be transported to the Missouri River or adjacent wetlands, selenium toxicity could result in fish and wildlife; however, the risk of this is very low. The study is designed to minimize return flow volumes and treat any contaminated water to acceptable State and Federal standards. In addition, no untreated return flows will be discharged to the environment. If problems should be encountered with the treatment processes, the subsurface drains would be plugged and water applications would be discontinued, which should prevent any contaminated groundwater from joining surface waters.

Sustained irrigation without proper drainage could eventually result in salt buildup in the soil profile, which is detrimental to crops. Salt is removed from the root zone through the leaching process. Based on limited data from existing irrigation in the project area, and a comparison with glacial till soils in other areas of the U.S. and Canada, it is uncertain if salt buildup will occur and if it can be remedially drained and reclaimed if it does occur. This is an unknown, with regard to glacial till soils, and is to be addressed in the demonstration program.

An endangered species consultation for the proposed Lake Andes-Wagner Unit was initiated in 1982. The Fish and Wildlife Service concurred that the project would not adversely impact the then listed species in the area. Since additional species have been listed since that time, a new consultation will be undertaken.

There are several potential positive impacts of the demonstration project. First, this research would help determine the feasibility of irrigating glacial till soils. Results of this research will provide valuable information on the effects of irrigation and drainage on the quality of soils and water.

Second, the research would determine the feasibility of treating subsurface drainage return flows for removal of selenium and other contaminants. At present the technology for removal of selenium is not well developed and it is an objective of this research to develop and test new techniques. The development of cost effective methods for treatment would be invaluable in other areas of South Dakota and the United States.

Third, there would be a wetland/wildlife enhancement component associated with the research. Missouri River water conveyed through the project distribution system would be used to enhance or create wetland basins in the area. Treatment sites will be selected based on inventory in year two of the study. Creation or restoration of dry basins would provide valuable habitat for

migratory and resident wildlife. In addition, water deliveries to some areas (e.g. south Lake Andes), if feasible, would potentially enhance recreation opportunities for local residents by permitting a sustainable fishery to exist in the lake. Irrigation return flows would not be used for any part of the wetland/wildlife enhancement portion of the program.

Environmental Compliance

This analysis is not intended to be a compliance document, but is intended to provide a summary of information to supplement the POS. National Environmental Policy Act (NEPA) compliance activities would be conducted concurrently with the development of study protocol and engineering designs to ensure than all prudent alternatives are evaluated prior to commitment of resources. As the final step in this process, a draft NEPA compliance document would be prepared and distributed to the public for their review and comment. All comments would be considered during preparation of the final document. Efforts will be made to avoid and/or minimize adverse environmental impacts in designing the demonstration project to the fullest extent practicable.

Senator BRADLEY. Congressman Johnson, welcome to the subcommittee.

STATEMENT OF HON. TIM JOHNSON, U.S. REPRESENTATIVE FROM SOUTH DAKOTA

Mr. JOHNSON. Thank you, Mr. Chairman, and Senator Daschle, members of the committee.

I want to thank you for allowing me to testify today in support of Lake Andes-Wagner/Marty II irrigation units and the Mid-Dakota rural water supply system. Both of these projects are critically important components in South Dakota's water development efforts, and Mr. Chairman, I would like to have the full text of my statement submitted for the record.

Senator BRADLEY. Your full statement will be included in the record.

Mr. JOHNSON. These projects complement each other, and I am hopeful that we can move forward with efforts to authorize both of them in a timely manner.

The Lake Andes-Wagner/Marty II project would help to strengthen South Dakota's rural economy. Irrigation helps to stabilize production, especially during times of drought, and we have had that circumstance now for two to three years across much of South Dakota. It would guarantee a day not far down the road when farmers could depend on harvesting a decent crop. In addition to stabilization, irrigation would allow for crop diversification. Current rainfall excludes the planting of a number of crops, whereas with a guaranteed water level farmers could easily expand to potatoes, sweet corn, edible beans and other new crops. The promise of guaranteed yields on these new crops would also attract food processing plants and other new economic enterprises in an economically depressed area of South Dakota.

The point I am making is this irrigation project means economic development for our rural region without expanding into new economic opportunities, a trend of out-migration I am afraid is going to continue. Unfortunately, our young people are leaving rural America because of a lack of opportunity, and unless we help supply the tools to generate new businesses, we will witness a continued decline in population and loss of lifestyle that has defined the United States for much of its history.

Unlike the Bureau of Reclamation's earlier irrigation projects, this one would clearly fulfill the bureau's original mission of helping the small family farmer. It would also parallel the bureau's original mission to help settle the West, although in this case it is a matter of helping to assure that the West stays settled.

Economic development would be particularly welcomed in the Marty II portion of this project. Marty II would be operated by the Yankton Sioux Tribe, which has an unemployment rate of nearly 90 percent. While irrigation development would by no means fully address this problem, it would certainly be a positive step in the right direction towards bringing economic development, dignity and self support for that economically-depressed segment of our population.

The authorization also includes wildlife enhancement provisions, and this would particularly benefit the wildlife refugees within the project area, including Lake Andes, Owens Bay and Red Lake refuge. These are important wetland areas that would certainly benefit from a steady supply of water.

As this Committee knows, questions have developed over the past year about serious problems with selenium in the project area. I am sensitive to these concerns, and I absolutely agree with the Committee that we need to demonstrate that there will be no negative environmental impacts resulting from going forward with this project, and for these reasons I am very supportive of the selenium demonstration project that is part of this legislation.

I have got to commend the project's sponsors for their efforts to develop this proposal, and this demonstration project is a collaborative effort that involved the Bureau of Reclamation, the EPA, the U.S. Fish & Wildlife Service, the Bureau of Indian Affairs, the U.S. Geologic Survey, and appropriate State agencies as well as the project sponsors. Research in selenium would have benefits that go far beyond the borders of South Dakota, and I see this as a model project not only for Lake Andes-Wagner but addressing a serious problem that we face across the Nation.

As to Mid-Dakota rural water supply, this is an effort to secure a steady supply of safe, clean drinking water for the citizens of east central South Dakota. The poor quality of ground water supplies in South Dakota has been documented through hearings on earlier South Dakota projects. The area exceeds safe drinking water levels in iron, sodium, sulfates, total dissolved solids, manganese and in some areas nitrates and bacteria, with nitrates poisoning an especially severe risk to infants.

In addition to providing quality water to both farms and small communities in the region, it would help supply the livestock water that is essential for the economy of that region to continue to prosper. It also has developed a unique wetland enhancement component in a part of South Dakota that is part of the Prairie Pothole region of the Great Plains, and is included in the important central flyway region of our Nation.

Unfortunately, much of the wetlands and much of the habitat has been lost over recent decades, and the Mid-Dakota project would play a constructive role in not only supporting the population in this region but also to restoring and enhancing the habitat and wildlife of that region.

Mid-Dakota has a strong support across the board of South Dakota officials as well as grassroots support. I think the Mid-Dakota project, again following on the heels of Web and Mni Wiconi, is one that would certainly be a positive use of the water resources we have in the Missouri River, using it in a cost-efficient manner, and providing not only for enhanced quality of life of people and wildlife in our region, but also to stabilize an economy of a part of the country that continues to undergo severe stress.

So I want to thank you, Mr. Chairman and members of the Committee, for your willingness to hear our testimony. I certainly join with the Senator in entertaining any questions that might be had.

[The prepared statement of Mr. Johnson follows:]

TESTIMONY OF THE HONORABLE TIM JOHNSON

HEARING ON LAKE ANDES-WAGNER/MARTY II IRRIGATION UNITS AND THE MID-DAKOTA RURAL WATER SUPPLY PROJECT

SENATE ENERGY AND NATURAL RESOURCES SUBCOMMITTEE ON WATER AND POWER

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

Mr. Chairman, I would like to thank you for allowing me to testify today in support of the Lake Andes-Wagner/Marty II Irrigation Units and the Mid-Dakota Rural Water Supply System. Both of these projects are important components in South Dakota's water development efforts. These projects complement each other, and I am hopeful that we can move forward with efforts to authorize both of them in a timely manner.

The Lake Andes-Wagner/Marty II project would help to strengthen South Dakota's rural economy. Irrigation helps to stabilize production, especially during times of drought. South Dakota has been in the grip of a drought for three years, and while this project would have no immediate impact, it would guarantee a day not far down the road when farmers could depend on harvesting a decent crop. In addition to stabilization, irrigation would allow for crop diversification. Current rainfall excludes the planting of a number of crops, whereas with a guaranteed water level, farmers could easily expand to potatoes, sweet corn, edible beans and other new crops. The promise of guaranteed yields on these new crops would also attract food processing plants and other new economic enterprises.

The point I am making is that this irrigation project means economic development for this rural region of South Dakota. Without expanding into new new economic opportunities, the trend of out migration will continue. Unfortunately, our young people are leaving rural America because of a lack of opportunity. Unless we help to supply the tools to generate new businesses, we will witness a continued decline in population and the loss of a lifestyle that has defined the United States for much of its history.

Unlike many of the Bureau of Reclamation's earlier irrigation projects, this one would clearly fulfill the Bureau's original mission of helping the family farmer. It would also parallel the Bureau's original mission to help settle the West--although, in this case, we will be working to ensure that the West stays settled. This project is not an attempt to enrich a few wealthy landowners, it is an attempt to help preserve our family farmers. These are the same family farmers who help to put food on our tables at a reasonable price.

Economic development would be particularly welcomed on the Marty II portion of this project. The Marty II Unit would be operated by the

Yankton Sioux Tribe, which has an unemployment rate of nearly 90%. While irrigation development would by no means fully address this problem, it would certainly be a positive step in the right direction toward developing local economic initiatives.

This authorization also includes wildlife enhancements provisions, which would particularly benefit wildlife refuges within the project area, including Lake Andes, Owens Bay and the Redlake Refuge. These are important wetland areas that would certainly benefit from a steady source of water.

As the Committee well knows, questions have developed over the past year about potential problems with selenium in the project area. I am very sensitive to these concerns and agree that we need to demonstrate that no negative environmental impacts will result from this project before we go forward. For these reasons, I am very supportive of the selenium demonstration project that is part of this legislation. I must commend the project sponsors for their efforts to develop this proposal. After the sponsors learned of the potential selenium problem, they immediately went to work developing a solution. The proposed demonstration project is a collaborative effort that involved the Bureau of Reclamation, the E.P.A., the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, the U.S. Geological Survey, and appropriate state agencies as well as the project sponsors. This group spent a considerable amount of time and effort in developing the demonstration project before us. Research into selenium would have benefits far beyond the borders of South Dakota since other agricultural areas in the nation have encountered selenium problems. I am hopeful that the full Lake Andes-Wagner/Marty II project can be authorized along with this unique demonstration project.

I would like to now move to the Mid-Dakota Rural Water Supply project. I am a strong advocate of an expanded federal role in rural water delivery. It makes no sense to me that we allow people in our nation to drink water of such exceedingly poor quality. The Mid-Dakota project is an effort to secure a steady supply of safe, clean drinking water for residents of east-central South Dakota.

Water is life's most basic commodity. Without it we cannot survive, and surviving on poor quality water imperils lives and the economy. The poor quality of groundwater supplies in South Dakota has been documented through hearings on earlier South Dakota projects. As in

these other regions, much of the water in the Mid-Dakota project area exceeds Safe Drinking Water levels in iron, sodium, sulfates, total dissolved solids, manganese and, in some areas, nitrates and bacteria. These unsafe levels pose a serious threat to public health. Nitrates pose an especially severe risk to infants since they rob babies of oxygen, which can lead to suffocation. A baby died in South Dakota in 1986 because of the water it drank, and many families in the project area are forced to face this deadly threat. It seems incongruous that water can kill, but in this region, it has that potential.

In addition to the public health threat from water of such poor quality, this water has a direct impact on the local economy since livestock, especially the young, are also put at risk when they drink the water. Agriculture is South Dakota's primary economic generator, and a steady supply of clean water would be a welcome benefit to area livestock. By improving the water supply, livestock operations, and thus the local economy, would be improved.

In addition to the drinking water aspects of this proposal, the project sponsors have developed a unique wetland enhancement component, which has great potential to improve existing wetlands and create new wetlands. As you all know, the prairie pothole region of the Great Plains, including this portion of South Dakota, plays an integral role in the Central Flyway. These wetlands have been important habitats for numerous species of waterfowl, as well as other birds and animals, for centuries. Unfortunately, much of this habitat has been lost over the years. The wetland enhancement component of this project provides us with a good opportunity to help repair some of this damage while also providing a model for similar future cooperative ventures. I would like to thank the project sponsors for developing this plan and making it a key part of their proposal.

The Mid-Dakota Rural Water Supply project has strong support across the board. There are no divisions here for Republicans and Democrats or for state versus local interests. This project is strongly supported in the project area, it is supported by the state, and it has the strong support of the entire Congressional delegation. It is supported by state environmental organizations as well as the Rural Electric community. We have everyone on board for this well thought out project, and we will continue working together to authorize Mid-Dakota.

Many years ago, South Dakota was promised a significant level of water development in return for the development of the Pick-Sloan Missouri River Basin Program. The development of Lake Andes-Wagner/Marty II and Mid-Dakota would be a significant step in the direction of compensation for the promised development that never materialized. In addition to simply living up to past obligations, these are good projects that can stand on their own merits, and I will continue to work to authorize both of them. Both of these projects would help to stabilize the rural economy in their areas and help to preserve a lifestyle that, although very much alive, may be threatened unless action is taken.

Water is the lifeblood for development in the West; both of these projects demonstrate the useful purposes of soundly developed water resources, especially for those whose lives they would touch. I am hopeful that we can move forward with authorization for both of these projects in a timely fashion.

Thank you again for this opportunity to testify.

Senator BRADLEY. Thank you very much for your testimony, Congressman, and Senator Daschle, thank you very much for yours as well. I have one or two small questions.

One, I need to clarify a point, because in the bill you direct the Administration to include the funding for Lake Andes, Marty II in the budget—and this is from the bill—in the budget no later than "the fiscal year that commences in the second calendar year following the calendar year in which the supplemental planning report final EIS referred to in Section 4A when it is transmitted to Congress."

That is, in and of itself—you know, you could understand that, but the real question is how this interacts with the EIS that is being done. Is it your intention that the Administration would have to request funding for the project even if the Secretary was unable to make the water quality finding that you have envisioned him making in Section 4B?

Senator DASCHLE. Mr. Chairman, that is an excellent question, and I think it deserves some clarification. First of all, the Secretary is only required to provide any kind of recommendation once the demonstration project is complete and once he is convinced, from an environmental and economic point of view, that this project makes sense.

Secondly, he is only required to make the request of the Office of Management and Budget. That is all. There is nothing in the law that requires, once the request is made of OMB, for OMB to then make the request in its official budget presentation to Congress.

Senator BRADLEY. But would it be an absolute prerequisite that construction would have to—before construction you would have to certify that the projects can be operated in full compliance with the water quality standards?

Senator DASCHLE. Absolutely. First of all, that demonstration has to be made as a result of this 9-year study. Secondly, once the demonstration is made, the Secretary then must determine whether from an economic and an environmental point of view this project makes sense. Only then would he submit his budget request to OMB, and only then would OMB consider it as to whether or not they would want to make it an official part of the presidential budget proposal to Congress for that year.

Senator BRADLEY. Senator Ford?

Senator FORD. Thank you, Mr. Chairman. Let me give you an impression, and if you all want to correct me, as it relates to—there is always the West getting all these water projects. We hear all that here in Washington, that those that are blessed with water and green grass and big trees fuss about those that re trying to better themselves.

So I do not fault you for trying for this project at all. In fact, I have read it and I have glanced at some of the testimony. I think you all have done at least three things that impress me. One is, you demonstrate the need. I think that is evident. Secondly, they have put an emphasis on the small farmer. We hear a lot about the small farmer, but we never do anything. It always winds up with the big farmer getting most of it, but you have emphasized the small farm family here, and I think that is important.

We have emphasized the benefit to wildlife, and Congressman I listened to your testimony very closely. This appears, Mr. Chairman, to be a cooperative effort. It is not one single group trying to do something and get credit for it. This is a wide-ranged cooperative effort, and the demonstration will, as I understand it, once that is completed and it tells us certain things, not until then is the next step triggered. Am I correct in that?

Senator DASCHLE. Senator Ford, you certainly are correct. It only kicks in, as we were saying just a minute ago, after the demonstration project has been complete, and I might touch on a couple of things you mentioned.

First of all, this is being proposed at a time when some journalists in the country have advocated that the entire upper Mid-West be redesignated a buffalo commons, and we just forget about economic development up there. We will not accept that. We cannot accept that. The fact is that there are a lot of kids and young people out there who want very much to live there, who feel very strongly about having the opportunity to live in South Dakota and Montana, Nebraska and North Dakota.

Secondly, we have learned from the mistakes of past reclamation projects. The fact is, the Corps of Engineers is not adhering to the congressional mandate about wildlife mitigation. They have ignored what Congress has said they do on wildlife mitigation on other projects. We lock in even tighter and require even greater wildlife mitigation with this project, so from a wildlife point of view, from an environmental point of view, it represents in my view one of the single best opportunities to show how we can move ahead with economic development and still be very sensitive to our environmental concerns.

Senator FORD. I thank the Senator for that answer. That is the appearance, or the image that is left, and I say to my good friend the Chairman that if these young people are not given the opportunity to stay on a small farm, they are going to move to the crowded urban areas. One, that creates a problem that we are trying to accommodate now—the homeless, et cetera.

But we give them an opportunity for a future, if this project continues, to stay on the farm, and one of these days we are going to need these young people out there, and if we do not begin to plan for them now, and this is part of the—everybody is talking about how tight the money is, but there is good money and there is bad money, and in my opinion this is good money, and money well spent.

So I just want to endorse the approach, and I look forward to working with the Chairman and those who represent South Dakota and that general area to see if we cannot push this piece of legislation along.

Senator BRADLEY. Senator Burns?

Senator BURNS. I would like to associate myself with the words of Senator Ford and what he said there. Of course, the only way you are going to keep farms from getting any bigger is to pass a law that they cannot build a tractor bigger than 75 horses, so that is inevitable.

Senator FORD. I do not understand that, Senator Burns. I only had two mules.

[Laughter.]

Senator BURNS. But that is a fact of life, and we might as well face up to it.

Just a couple of questions, and I agree with everything we have done in this Government in the last 10 years is to weigh in on production agriculture, to keep people on the land and keep it in production, and it seems like, as this euphoria that we have around town now, in food production and food safety, and this type thing—I even had a person tell me this weekend that food production in this country was not important because we could import everything that we need in this country to eat.

But you have got a sort of a mind set going on now that this country can do that, and it is a very faulty assumption, as most of us who were raised in the bread basket of this country well realize. These projects have to move forward. It is a wise use of our water, and although up in Montana we are having a hard time dealing with it, we would like to think that it is a renewable resource. We are in the middle of a drought and we know what that has done to our Missouri River drainage, and the spirit of cooperation that the States have taken on out there, to make these types of projects happen.

So I want to learn more about this project but I am fully supportive of projects like this because I think it is necessary. It is going to be the life-blood of central America and it just has to move forward if this society called American expects agriculture to feed it, and feed it in a manner which everybody can afford. If we continue to shut down ways to economically produce food, then the homeless and the hungry situation in this country, the worst is yet ahead of us. There are trade-offs, and this happens to be one of the good trade-offs.

Thank you very much.

Senator BRADLEY. Thank you very much. Let me thank both of you for your avid interest and testimony today.

Our next witness will be James G. Bell, Chairman, South Dakota Board of Water and Natural Resources. Mr. Bell, welcome to the Subcommittee, and if you could—and I would like all of the witnesses to know that I would hope that you would limit your testimony to seven or eight minutes so that we could get into the questions, which is the real purpose here. I have most all of your statements. This is a subject we have talked about before in the Subcommittee, so if you could be brief, that would be helpful.

Mr. Bell, welcome.

STATEMENT OF JAMES G. BELL, CHAIRMAN, SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES, ON BEHALF OF GOVERNOR GEORGE MICHELSON, ACCOMPANIED BY GREG POWELL

Mr. BELL. Thank you. Good morning, gentlemen. I appreciate hearing what I just heard here from you gentlemen on the committee in response to our delegation.

Mr. Chairman and members of the committee, I am James Bell, Chairman of the South Dakota Board of Water and Natural Resources. I am here today to speak on behalf of Governor George Mi-

chelson in support of S. 1765 and S. 2710. S. 1765 authorizes the construction of the Mid-Dakota Rural Water System in east central South Dakota. S. 2710 provides for the development of Lake Andes-Wagner/Marty II demonstration research program and authorizes construction of the Lake Andes-Wagner/Marty II projects in south central South Dakota.

The Mid-Dakota Rural Water System represents the solution to a serious water quality and water supply problem in South Dakota. Construction of the system will deliver domestic drinking water that meets safe drinking water act standards and will provide an opportunity for economic development that does not exist without a dependable quality water supply. Mid-Dakota will serve 30,000 people in 24 communities and through 2,900 water hook-ups in 12 counties. Additionally, Mid-Dakota will provide water to more than 600,000 head of livestock in an area covering more than 7,000 square miles.

The Lake Andes-Wagner/Marty II Demonstration Project is a 5,000 acre research effort designed to determine the drainage properties of glacial till soils, the effects of irrigation on selenium movement within these soil types, treatment methods for elevated levels of selenium in surface waters, and wetland and wildlife enhancement activities for areas having high levels of naturally-occurring selenium.

Research is desperately needed in these areas, not just for South Dakota but for most of the western United States, where elevated levels of selenium exist which can have devastating environmental consequences.

Representatives of the respective projects will follow this presentation. They are prepared to address or follow-up later with answers to specific questions. Furthermore, there are a great number of fellow South Dakotans present, all of whom have a vital role in supporting these projects. As Chairman of the South Dakota Board of Water and Natural Resources it is my responsibility, along with the other board members, to assist the State in realizing its water development goals. In August 1987, Governor Michelson announced a South Dakota water initiative in order to identify the contemporary water needs of the State, and to unify the citizens of South Dakota behind a common water development agenda.

The South Dakota Board of Water and Natural Resources held a series of public hearings across the State to identify South Dakota's contemporary water needs, and following our recommendations to Governor Michelson the 1988 State legislature unanimously adopted the water initiative recommendations as law.

The Mid-Dakota Rural Water System and the Lake Andes-Wagner/Marty II irrigation projects are a reflection of that 1987 initiative to address the contemporary water needs of the State and a recognition that water resource development is changing throughout the Nation. Authorization of these projects will serve to initiate a new era in water development, an era which includes a revitalized Pick-Sloan program that addresses contemporary water needs, an era that recognizes the importance of wetland development and enhancement, an era that includes State and local cost-sharing as an integral part of water resource development, and an era which exhibits a new spirit of cooperation.

The project sponsors and representatives of the State have worked very closely with the Bureau of Reclamation, the U.S. Fish and Wildlife, the EPA, the South Dakota Department of Game, Fish and Parks, South Dakota Department of Water and Natural Resources, fish and wildlife interests, public preference power interests, tribal interests and local governments.

Mr. Chairman, only a short few months ago I had the opportunity to chair a public meeting in the Mid-Dakota Rural Water System in Miller, South Dakota, and I am pleased to inform this Committee that the Mid-Dakota Rural Water System was unanimously endorsed by the nearly 400 attendees. No opposition was voiced by any individual attending that meeting. This type of unity was also reflected in the public meetings conducted by the Bureau of Reclamation of the Lake Andes-Wagner/Marty II demonstration research program.

In closing, let me stress that we in South Dakota are dependent upon our land and natural resources, particularly the water. Our economy is predominantly agriculture, and our livelihood is dependent upon the safe and efficient development of these resources. These two projects will strengthen our economy and address our contemporary water needs. I underscore that I respectfully request your favorable consideration and active support of these two vital projects.

Thank you.

[The prepared statements of Mr. Bell and Governor Michelson follow:]

STATEMENT OF

JAMES G. BELL

CHAIRMAN

SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES

ON

S. 1765
MID-DAKOTA RURAL WATER SYSTEM

AND

S. 2710
LAKE ANDES-WAGNER/MARTY II UNITS

BEFORE THE

WATER AND POWER SUBCOMMITTEE

ENERGY AND NATURAL RESOURCES COMMITTEE

UNITED STATES SENATE

JUNE 19, 1990

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, I AM JAMES BELL, CHAIRMAN OF THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES. I AM HERE TODAY TO SPEAK ON BEHALF OF GOVERNOR GEORGE MICKELSON IN SUPPORT OF S. 1765 AND S. 2710. S. 1765 AUTHORIZES THE CONSTRUCTION OF THE MID-DAKOTA RURAL WATER SYSTEM IN EAST CENTRAL SOUTH DAKOTA. S. 2710 PROVIDES FOR THE DEVELOPMENT OF THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION RESEARCH PROGRAM AND AUTHORIZES CONSTRUCTION OF THE LAKE ANDES-WAGNER/MARTY II PROJECTS IN SOUTH CENTRAL SOUTH DAKOTA.

THE MID-DAKOTA RURAL WATER SYSTEM REPRESENTS THE SOLUTION TO A SERIOUS WATER QUALITY AND WATER SUPPLY PROBLEM IN SOUTH DAKOTA. CONSTRUCTION OF THIS SYSTEM WILL DELIVER DOMESTIC DRINKING WATER THAT MEETS SAFE DRINKING WATER ACT STANDARDS AND WILL PROVIDE AN OPPORTUNITY FOR ECONOMIC DEVELOPMENT THAT DOES NOT EXIST WITHOUT A DEPENDABLE, QUALITY WATER SUPPLY. MID-DAKOTA WILL SERVE 30,000 PEOPLE IN 24 COMMUNITIES AND THROUGH 2,900 RURAL HOOK-UPS IN 12 COUNTIES. ADDITIONALLY, MID-DAKOTA WILL PROVIDE WATER TO MORE THAN 600,000 HEAD OF LIVESTOCK IN AN AREA COVERING MORE THAT 7,000 SQUARE MILES.

THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM IS A 5,000 ACRE RESEARCH EFFORT DESIGNED TO DETERMINE THE DRAINAGE PROPERTIES OF GLACIAL TILL SOILS, THE EFFECTS OF IRRIGATION ON SELENIUM MOVEMENT WITHIN THESE SOIL TYPES, TREATMENT METHODS FOR ELEVATED LEVELS OF SELENIUM IN SURFACE WATERS, AND WETLAND AND WILDLIFE ENHANCEMENT ACTIVITIES FOR AREAS HAVING HIGH LEVELS OF NATURALLY OCCURRING SELENIUM. RESEARCH IS DESPERATELY NEEDED IN THESE AREAS, NOT JUST FOR SOUTH DAKOTA, BUT FOR MOST

OF THE WESTERN UNITED STATES WHERE ELEVATED LEVELS OF SELENIUM EXIST WHICH CAN HAVE DEVASTATING ENVIRONMENTAL CONSEQUENCES.

AS CHAIRMAN FOR THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES, IT IS MY RESPONSIBILITY, ALONG WITH THE OTHER BOARD MEMBERS, TO ASSIST THE STATE OF SOUTH DAKOTA IN REALIZING ITS WATER DEVELOPMENT GOALS. IN AUGUST, 1987, GOVERNOR MICKELSON ANNOUNCED A SOUTH DAKOTA WATER INITIATIVE IN ORDER TO IDENTIFY THE CONTEMPORARY WATER NEEDS OF THE STATE AND TO UNIFY THE CITIZENS OF SOUTH DAKOTA BEHIND A COMMON WATER DEVELOPMENT AGENDA. THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES HELD A SERIES OF PUBLIC HEARINGS ACROSS THE STATE TO IDENTIFY SOUTH DAKOTA'S CONTEMPORARY WATER NEEDS. FOLLOWING OUR RECOMMENDATIONS TO GOVERNOR MICKELSON, THE 1988 STATE LEGISLATURE UNANIMOUSLY ADOPTED THE WATER INITIATIVE RECOMMENDATIONS AS LAW.

THE MID-DAKOTA RURAL WATER SYSTEM AND THE LAKE ANDES-WAGNER/MARTY II IRRIGATION UNITS ARE A REFLECTION OF THAT 1987 WATER INITIATIVE TO ADDRESS THE CONTEMPORARY WATER NEEDS OF SOUTH DAKOTA AND A RECOGNITION THAT WATER RESOURCE DEVELOPMENT IS CHANGING THROUGHOUT THE NATION. AUTHORIZATION OF THESE PROJECTS WILL SERVE TO INITIATE A NEW ERA IN WATER DEVELOPMENT. AN ERA WHICH INCLUDES A REVITALIZED PICK-SLOAN PROGRAM THAT ADDRESSES CONTEMPORARY WATER NEEDS, AN ERA THAT RECOGNIZES THE IMPORTANCE OF WETLAND DEVELOPMENT AND ENHANCEMENT, AN ERA THAT INCLUDES STATE AND LOCAL COST SHARING AS AN INTEGRAL PART OF WATER RESOURCE DEVELOPMENT, AND AN ERA WHICH EXHIBITS A NEW SPIRIT OF COOPERATION. THE PROJECT SPONSORS AND REPRESENTATIVES OF THE STATE HAVE WORKED VERY CLOSELY WITH THE UNITED STATES BUREAU OF RECLAMATION, THE

UNITED STATES FISH AND WILDLIFE SERVICE, THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, THE SOUTH DAKOTA DEPARTMENT OF GAME FISH AND PARKS, THE SOUTH DAKOTA DEPARTMENT OF WATER AND NATURAL RESOURCES, FISH AND WILDLIFE INTERESTS, PUBLIC PREFERENCE POWER INTERESTS, TRIBAL INTERESTS, AND LOCAL GOVERNMENTS.

MR. CHAIRMAN, ONLY A FEW SHORT MONTHS AGO I HAD THE OPPORTUNITY TO CHAIR A PUBLIC MEETING ON THE MID-DAKOTA RURAL WATER SYSTEM IN MILLER, SOUTH DAKOTA. I AM PLEASED TO INFORM THIS COMMITTEE THAT THE MID-DAKOTA RURAL WATER SYSTEM WAS UNANIMOUSLY ENDORSED BY THE NEARLY 400 ATTENDEES. NO OPPOSITION WAS VOICED BY ANY INDIVIDUAL ATTENDING THE MEETING. THIS TYPE OF UNITY WAS ALSO REFLECTED IN THE PUBLIC MEETINGS CONDUCTED BY THE U.S. BUREAU OF RECLAMATION FOR THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION RESEARCH PROGRAM.

IN CLOSING LET ME STRESS, THAT WE IN SOUTH DAKOTA ARE DEPENDENT UPON OUR LAND AND WATER RESOURCES. OUR ECONOMY IS PREDOMINANTLY AGRICULTURE AND OUR LIVELIHOOD IS DEPENDENT UPON THE SAFE AND EFFICIENT DEVELOPMENT OF THESE RESOURCES. THE LAKE-ANDES-WAGNER/MARTY II UNITS AND THE MID-DAKOTA RURAL WATER SYSTEM WILL STRENGTHEN OUR ECONOMY AND ADDRESS OUR CONTEMPORARY WATER NEEDS. I RESPECTFULLY REQUEST YOUR FAVORABLE CONSIDERATION AND ACTIVE SUPPORT OF THESE TWO VITAL PROJECTS.

TESTIMONY OF

JAMES G. BELL

CHAIRMAN

SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES

ON S. 1765

MID-DAKOTA RURAL WATER SYSTEM

SUBMITTED TO THE

WATER AND POWER SUBCOMMITTEE

ENERGY AND NATURAL RESOURCES COMMITTEE

UNITED STATES SENATE

JUNE 19, 1990

I SUBMITTING THIS DOCUMENT AS WRITTEN TESTIMONY IN SUPPORT OF S. 1765, A BILL WHICH WILL AUTHORIZE THE DEVELOPMENT OF THE MID-DAKOTA RURAL WATER SYSTEM. THE MID-DAKOTA RURAL WATER PROJECT WILL IMPROVE RURAL HEALTH, STIMULATE RURAL ECONOMIC DEVELOPMENT, AND ENSURE SAFE DRINKING WATER FOR EAST-CENTRAL SOUTH DAKOTA. THE MID-DAKOTA RURAL WATER SYSTEM WILL PROVIDE ADEQUATE SUPPLIES OF HIGH QUALITY DRINKING WATER TO AN AREA OF SOUTH DAKOTA WHICH IS PLAGUED WITH SERIOUS WATER QUALITY AND WATER SUPPLY PROBLEMS.

RECOGNIZING THE DIFFICULTY OF DEVELOPING OUR MISSOURI RIVER WATER RESOURCES AS ORIGINALLY ENVISIONED IN THE 1944 FLOOD CONTROL ACT, GOVERNOR MICKELSON ANNOUNCED A SOUTH DAKOTA WATER INITIATIVE IN 1987 AS A WAY TO IDENTIFY THE CONTEMPORARY WATER NEEDS OF THE STATE AND TO UNIFY THE CITIZENS OF SOUTH DAKOTA BEHIND A COMMON WATER DEVELOPMENT AGENDA. THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES, RESPONSIBLE FOR ASSISTING THE STATE OF SOUTH DAKOTA IN DEVELOPING POLICY AND ESTABLISHING PRIORITIES FOR EFFECTIVELY DEVELOPING THE WATER RESOURCES OF OUR STATE, HELD A SERIES OF PUBLIC HEARINGS ACROSS THE STATE TO IDENTIFY SOUTH DAKOTA'S CONTEMPORARY WATER NEEDS. FOLLOWING OUR RECOMMENDATIONS TO GOVERNOR MICKELSON, THE 1988 STATE LEGISLATURE UNANIMOUSLY ADOPTED THE WATER INITIATIVE RECOMMENDATIONS AS LAW.

THE MID-DAKOTA RURAL WATER PROJECT IS A REFLECTION OF THAT 1987 WATER INITIATIVE TO ADDRESS THE CONTEMPORARY WATER NEEDS OF SOUTH DAKOTA AND A RECOGNITION THAT WATER RESOURCE DEVELOPMENT IS CHANGING THROUGHOUT THE NATION. AUTHORIZATION OF THE MID-DAKOTA RURAL WATER SYSTEM WILL SERVE TO INITIATE A NEW ERA IN WATER DEVELOPMENT. AN ERA WHICH INCLUDES A

REVITALIZED PICK-SLOAN PROGRAM THAT ADDRESSES CONTEMPORARY WATER NEEDS. AN ERA THAT RECOGNIZES THE IMPORTANCE OF WETLAND DEVELOPMENT AND ENHANCEMENT AND INCLUDES THE DEVELOPMENT OF SUCH AS AN INTEGRAL COMPONENT OF WATER RESOURCE DEVELOPMENT. AND FINALLY AN ERA WHICH INCLUDES A HISTORIC AGREEMENT FOR THE UTILIZATION OF PICK-SLOAN POWER FOR RURAL WATER SYSTEMS.

IN APRIL, I HAD THE OPPORTUNITY TO CHAIR A PUBLIC MEETING ON THE MID-DAKOTA RURAL WATER SYSTEM IN MILLER, SOUTH DAKOTA. I AM PLEASED TO INFORM THIS COMMITTEE THAT THE MID-DAKOTA RURAL WATER SYSTEM WAS UNANIMOUSLY ENDORSED BY THE NEARLY 400 ATTENDEES. NO OPPOSITION WAS VOICED BY ANY INDIVIDUAL ATTENDING THE MEETING. FOLLOWING THE MEETING THE BOARD ENDORSED A RESOLUTION URGING CONGRESS TO AUTHORIZE AND DEVELOP THE MID-DAKOTA RURAL WATER PROJECT AS QUICKLY AS POSSIBLE. I AM SUBMITTING THAT RESOLUTION AS PART OF MY WRITTEN TESTIMONY.

SOUTH DAKOTA IS DEPENDENT UPON OUR LAND AND WATER RESOURCES AND OUR ECONOMY IS BASED ON AGRICULTURE. OUR LIVELIHOOD IS DEPENDENT UPON OUR SAFE AND EFFICIENT DEVELOPMENT OF THOSE RESOURCES. THE MID-DAKOTA RURAL WATER SYSTEM ADDRESSES A CONTEMPORARY WATER NEED IN SOUTH DAKOTA. I RESPECTFULLY REQUEST YOUR FAVORABLE CONSIDERATION AND ACTIVE SUPPORT OF THIS VITAL PROJECT.

State of South Dakota
Board of Water and Natural Resources
Resolution # 90-41

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE PROPOSED MID-DAKOTA RURAL WATER SYSTEM.

WHEREAS, the Congress of the United States found it in the national interest to adopt the Flood Control Act of 1944; and

WHEREAS, the Flood Control Act of 1944, commonly referred to as Pick-Sloan, called for federal development and management of the Missouri River; and

WHEREAS, an equitable distribution of benefits has not occurred under the Pick-Sloan program as envisioned in 1944; and

WHEREAS, Pick-Sloan development was intended to provide rural economic development to South Dakota and the Mid-Dakota Rural Water represents a contemporary Pick-Sloan project which will provide rural economic development; and

WHEREAS, Mid-Dakota Rural Water will promote rural infrastructure development and will provide increased productivity for the national benefit; and

WHEREAS, 23 municipalities within the Mid-Dakota Rural Water service area do not meet primary or secondary drinking water standards established by the Safe Drinking Water Act; and

WHEREAS, the Mid-Dakota Rural Water System is a proposed rural water domestic water system which will provide high quality water to the counties of Beadle, Buffalo, Hand, Hughes, Hyde, Jerauld, Potter, Sanborn, Sully and small portions of Spink, Kingsbury and Aurora; and

WHEREAS, the project will provide quality water to 29,000 users including 2,900 rural hookups and 24 communities within the twelve county region; and

WHEREAS, a detailed engineering feasibility study and report was completed for the project in early 1989 and has been reviewed and approved by the Bureau of Reclamation; and

WHEREAS, the Mid-Dakota Rural Water System represents the solution to a serious water quality and water supply problem in South Dakota, and construction of this system will provide an opportunity for economic development that does not exist without a dependable, quality water supply; and

WHEREAS, the source of water for this project is the Missouri River, and the South Dakota Legislature included the Mid-Dakota Rural Water System as a Pick-Sloan project objective codified in state statute; and

WHEREAS, Mid-Dakota Rural Water System and Mid-West Electric Consumers Association have signed an agreement to provide the Mid-Dakota Rural Water System with low-cost Pick-Sloan hydro power during the summer months and local rural electric power during the remainder of the year for lift power and pressurization of the trunk line; and

WHEREAS, the wetland development and enhancement component of the project was developed with direct involvement of the South Dakota Department of Game, Fish and Parks, South Dakota State University, Ducks Unlimited, U.S. Fish and Wildlife Service, National Audubon Society, and National Wildlife Federation to improve migratory waterfowl production; and

WHEREAS, the State of South Dakota and the local project sponsors have recognized cost-sharing as an integral part of this project and submitted a combined cost share package of $31.66 million to the Senate Subcommittee on Water and Power; and

WHEREAS, the people living in the project area have demonstrated their enthusiastic and unanimous support for the project; and

WHEREAS, Federal authorization legislation has been introduced as S. 1765.

THEREFORE BE IT RESOLVED, that the South Dakota Board of Water and Natural Resources urges the South Dakota congressional delegation, the Congress of the United States, and the President of the United States to act with all possible haste to authorize and appropriate funds for the Mid-Dakota Rural Water System.

Dated this 12th day of June, 1990

James A. Beers
Chairman, Board of Water and
Natural Resources

(SEAL)

Dale Kennedy
Secretary, Board of Water and
Natural Resources

TESTIMONY OF

JAMES G. BELL

CHAIRMAN

SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES

ON S. 2710

LAKE ANDES-WAGNER/MARTY II UNITS

SUBMITTED TO THE

WATER AND POWER SUBCOMMITTEE

ENERGY AND NATURAL RESOURCES COMMITTEE

UNITED STATES SENATE

JUNE 19, 1990

I AM SUBMITTING WRITTEN TESTIMONY IN SUPPORT OF S. 2710 WHICH WILL AUTHORIZE THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECTS IN SOUTH CENTRAL SOUTH DAKOTA CONTINGENT ON THE FINDINGS OF AN IRRIGATION RESEARCH DEMONSTRATION PROGRAM FOR THE LAKE ANDES-WAGNER/MARTY II PROJECT.

AS CHAIRMAN OF THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES, IT IS MY RESPONSIBILITY, ALONG WITH THE OTHER BOARD MEMBERS, TO ASSIST THE STATE OF SOUTH DAKOTA IN REALIZING WATER DEVELOPMENT GOALS. ON BEHALF OF THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES, I AM SUBMITTING RESOLUTION #90-38, SUPPORTING AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II PROJECT, ADOPTED AT THE BOARD'S JUNE 6, 1990 MEETING.

IN 1987, FOLLOWING A DIRECTIVE FROM GOVERNOR MICKELSON, THE BOARD OF WATER AND NATURAL RESOURCES HELD A SERIES OF PUBLIC HEARINGS ACROSS THE STATE TO RECEIVE PUBLIC INPUT REGARDING FUTURE WATER DEVELOPMENT IN SOUTH DAKOTA. AS A RESULT OF THESE HEARINGS, A WATER INITIATIVE PLAN WAS DEVELOPED WHICH IDENTIFIED KEY WATER DEVELOPMENT PROJECTS. THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT WAS IDENTIFIED BY THE CITIZENS OF SOUTH DAKOTA AS PART OF OUR WATER DEVELOPMENT INITIATIVE. IN 1988, OUR STATE LEGISLATURE UNANIMOUSLY ADOPTED THE WATER INITIATIVE RECOMMENDATIONS AS LAW.

SOUTH DAKOTA HAS AN AGRICULTURAL BASED ECONOMY WHICH HAS SUFFERED SERIOUS SETBACKS IN RECENT YEARS DUE TO DROUGHT. THE UNSTABLE NATURE OF OUR RURAL ECONOMY HAS RESULTED IN LIMITED OPPORTUNITIES FOR ECONOMIC GROWTH IN OUR STATE. MANY SMALL COMMUNITIES IN SOUTH DAKOTA ARE BECOMING EXTINCT AS A MAJORITY OF OUR CITIZENS LEAVE FOR BETTER OPPORTUNITIES ELSEWHERE.

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SMALLER POPULATION BASED COMMUNITIES HAVE MORE DIFFICULTLY IN RETAINING LOCAL BUSINESSES. NO WHERE ELSE IN OUR STATE ARE THESE DIFFICULTIES MORE POIGNANTLY EVIDENT THAN ON SOUTH DAKOTA RESERVATIONS. IRRIGATION PROJECTS, SUCH AS THE LAKE ANDES-WAGNER/MARTY II UNITS WILL PROVIDE A MECHANISM FOR STABILIZING THE ECONOMIES OF SOUTH DAKOTA AND THE RESERVATIONS. THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT WILL ALSO PROVIDE A BASE FOR FUTURE ECONOMIC GROWTH FOR THE YANKTON SIOUX RESERVATION AND SOUTH DAKOTA.

SOUTH DAKOTA IS PROUD OF THE COOPERATION THAT HAS DEVELOPED BETWEEN THE YANKTON SIOUX TRIBE, THE LAKE ANDES-WAGNER IRRIGATION PROJECT, THE SOUTH DAKOTA DEPARTMENT OF WATER AND NATURAL RESOURCES, THE SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS, THE BUREAU OF RECLAMATION, THE UNITED STATES BUREAU OF INDIAN AFFAIRS, THE UNITED STATES FISH AND WILDLIFE SERVICE, AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY IN DEVELOPING THE RESEARCH DEMONSTRATION PROGRAM. EACH ENTITY HAS AGREED ON THE SCOPE OF THE RESEARCH DEMONSTRATION PROGRAM AND HOW THE RESEARCH EFFORT IS TO BE DEVELOPED.

WE ARE ALL CONCERNED ABOUT THE POTENTIAL FOR ADVERSE ENVIRONMENTAL IMPACTS FROM IRRIGATING SELENIFEROUS SOILS. THIS RESEARCH DEMONSTRATION PROGRAM HAS BEEN DESIGNED TO SPECIFICALLY ADDRESS QUESTIONS ABOUT IRRIGATING GLACIAL TILL SOILS WHICH CONTAIN SELENIUM. WE DO NOT WANT AN IRRIGATION PROJECT WHICH WILL DAMAGE OUR ENVIRONMENT. FOR THIS REASON, S. 2710 HAS BEEN WRITTEN TO ALLOW CONSTRUCTION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT CONTINGENT ON THE RESULTS OF THE RESEARCH DEMONSTRATION PROJECT.

A SIGNIFICANT FEATURE OF THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM IS RESEARCH DESIGNED TO DETERMINE IF WILDLIFE AND WETLAND ENHANCEMENT ACTIVITIES CAN BE UNDERTAKEN IN AREAS WHICH HAVE NATURALLY OCCURRING HIGH LEVELS OF SELENIUM. ADDITIONALLY, RESEARCH WILL BE CONDUCTED TO DEVELOP POTENTIAL WATER TREATMENT METHODS FOR SELENIUM CONTAMINATED WATER. THESE RESULTS WILL PROVE TO BE IMPORTANT TO FUTURE IRRIGATION DEVELOPMENT IN OTHER WESTERN STATES AND SOUTH DAKOTA.

THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT WILL PROVIDE A NEEDED BASE FOR STABILIZING THE AGRICULTURAL ECONOMIES OF SOUTH DAKOTA AND THE RESERVATION, WHILE AT THE SAME TIME PROVIDING ECONOMIC DEVELOPMENT OPPORTUNITIES. RURAL ECONOMIES, SUCH AS SOUTH DAKOTA'S, ARE FACING DIFFICULT TIMES. IRRIGATION DEVELOPMENT COULD BE A VITAL PART OF SOUTH DAKOTA'S FUTURE. AT THE NATIONAL LEVEL, RESEARCH IS NEEDED TO DEFINITIVELY ANSWER QUESTIONS REGARDING IRRIGATING SELENIFEROUS GLACIAL TILL, WETLAND AND WILDLIFE ENHANCEMENT IN AREAS WITH NATURALLY OCCURRING HIGH LEVELS OF SELENIUM, AND POSSIBLE TREATMENT METHODS FOR SELENIUM CONTAMINATED WATER. THE LAKE ANDES-WAGNER/MARTY II RESEARCH DEMONSTRATION PROGRAM WILL FURNISH THESE ANSWERS.

SOUTH DAKOTA IS DEPENDENT UPON OUR LAND AND WATER RESOURCES AND OUR ECONOMY IS BASED ON AGRICULTURE. OUR LIVELIHOOD IS DEPENDENT UPON OUR SAFE AND EFFICIENT DEVELOPMENT OF THESE RESOURCES. WE RECOGNIZE THAT PICK-SLOAN DEVELOPMENT, AS ORIGINALLY ENVISIONED, IS UNLIKELY. SOUTH DAKOTA HAS SACRIFICED A GREAT DEAL IN ORDER THAT THE NATION COULD BENEFIT FROM THE MISSOURI RIVER. I STRONGLY BELIEVE THAT SOUTH DAKOTA SHOULD SHARE EQUITABLY IN THE BENEFITS OF PICK-SLOAN. THE LAKE ANDES-WAGNER/MARTY II

PROJECT WILL A ADDRESS A PORTION OF THE CONTEMPORARY WATER NEEDS IN SOUTH DAKOTA. I RESPECTFULLY REQUEST YOUR FAVORABLE CONSIDERATION AND ACTIVE SUPPORT OF THIS VITAL PROJECT.

State of South Dakota

Board of Water and Natural Resources

Resolution # 90-38

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT AND DEVELOPMENT OF A RESEARCH DEMONSTRATION PROJECT.

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Projects (the Projects) are proposed irrigation projects in Charles Mix County, South Dakota; and

WHEREAS, the Projects will irrigate approximately 48,000 acres in South Dakota; and

WHEREAS, the Projects would stabilize agricultural production in the area, provide new employment opportunities, and encourage the development of agricultural processing plants; and

WHEREAS, development of a 5,000 acre Research Demonstration Project will provide information for South Dakota and the Western States on sub-surface drainage of glacial till soils and the affects of irrigation on seleniferous soils; and

WHEREAS, the Board of Water and Natural Resources supports the development of environmentally sound water projects;

THEREFORE BE IT RESOLVED, that the South Dakota Board of Water and Natural Resources urges the Congress of the United States to authorize the Lake Andes-Wagner/Marty II Irrigation Project and to develop a Research Demonstration Project.

Dated this 12th day of June, 1990.

James A. Beer
Chairman, Board of Water and Natural Resources

(SEAL)

Dale Kennedy
Secretary, Board of Water and Natural Resources

TESTIMONY OF

GEORGE S. MICKELSON

GOVERNOR

STATE OF SOUTH DAKOTA

ON S. 1765

MID-DAKOTA RURAL WATER SYSTEM

SUBMITTED TO THE

WATER AND POWER SUBCOMMITTEE

ENERGY AND NATURAL RESOURCES COMMITTEE

UNITED STATES SENATE

JUNE 19, 1990

I AM SUBMITTING THIS WRITTEN TESTIMONY IN SUPPORT OF S. 1765, A BILL WHICH WILL AUTHORIZE THE CONSTRUCTION OF THE MID-DAKOTA RURAL WATER SYSTEM IN EAST CENTRAL SOUTH DAKOTA. THE MID-DAKOTA RURAL WATER SYSTEM REPRESENTS THE SOLUTION TO A SERIOUS WATER QUALITY AND WATER SUPPLY PROBLEM IN SOUTH DAKOTA. CONSTRUCTION OF THIS SYSTEM WILL DELIVER DOMESTIC DRINKING WATER THAT MEETS SAFE DRINKING WATER ACT STANDARDS AND THAT WILL PROVIDE AN OPPORTUNITY FOR ECONOMIC DEVELOPMENT THAT DOES NOT EXIST WITHOUT A DEPENDABLE, QUALITY WATER SUPPLY. MID-DAKOTA WILL SERVE 30,000 PEOPLE IN 24 COMMUNITIES AND THROUGH 2,900 RURAL HOOK-UPS IN 12 COUNTIES. ADDITIONALLY, MID-DAKOTA WILL PROVIDE WATER TO MORE THAN 600,000 HEAD OF LIVESTOCK IN AN AREA COVERING MORE THAN 7,000 SQUARE MILES.

ON APRIL 17, 1990, IN MILLER, SOUTH DAKOTA, THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES CONDUCTED A PUBLIC MEETING TO RECEIVE COMMENTS REGARDING THE FEDERAL AUTHORIZATION OF MID-DAKOTA. IT WAS MY HONOR AND PLEASURE TO ADDRESS OVER 400 POTENTIAL MID-DAKOTA USERS AND OTHER PROJECT SUPPORTERS. I ALSO LISTENED TO THE COMMENTS AND CONCERNS OF SEVERAL LOCAL ELECTED OFFICIALS, FARMERS, BUSINESS PEOPLE, AND OTHER RESIDENTS WHO WILL BENEFIT GREATLY BY IMPROVEMENTS TO THEIR WATER SUPPLIES. I WAS MOST IMPRESSED WITH THE OVERWHELMING SUPPORT AND TESTIMONIALS OF NEED FOR THE PROJECT THAT THE PARTICIPANTS EXPRESSED. AS PART OF MY TESTIMONY TODAY, I RESPECTFULLY SUBMIT THE TRANSCRIPT OF THAT PUBLIC MEETING TO DEMONSTRATE THE IMPORTANCE OF THIS PROJECT TO THE RESIDENTS OF THE MID-DAKOTA AREA.

THIS PROJECT IS NEEDED BECAUSE THE MID-DAKOTA AREA HAS ONLY A MARGINALLY ADEQUATE WATER SUPPLY. MOST OF IT IS OF POOR QUALITY AND GENERALLY NOT ACCEPTABLE FOR HOUSEHOLD USE. THE WATER DRAWN FROM DEEP AQUIFERS HAS HIGH TOTAL DISSOLVED SOLIDS, HIGH SODIUM CONTENT, AND HIGH SULFATE CONTENT. THE WATER FROM SHALLOW AQUIFERS HAS HIGH TOTAL DISSOLVED SOLIDS, IRON, SULFATES, SODIUM, HARDNESS, BACTERIA, AND NITRATES. THE CONSEQUENCES RANGE FROM NUISANCE TO OUTRIGHT DANGER TO PEOPLE AND LIVESTOCK. IN THIS AREA, NEARLY ALL OF THE COMMUNITIES' WELLS EXCEEDED ENVIRONMENTAL PROTECTION AGENCY STANDARDS FOR ONE OR MORE WATER QUALITY CONTAMINANT LEVELS. THE IRON CONTENT IN 16 OF 20 COMMUNITIES TESTED IN THE AREA EXCEEDED THE EPA LIMIT. IN 14 OF 20 COMMUNITIES TESTED, SULFATES

CONTENT EXCEEDED THE RECOMMENDED EPA LIMIT. TEN OF 20 COMMUNITIES TESTED HAVE WATER SUPPLIES EXCEEDING THE RECOMMENDED EPA LIMIT FOR SODIUM.

IN ADDITION, HIGH NITRATE AND BACTERIA LEVELS ARE AN INCREASING PROBLEM FOR FARM FAMILIES THAT RELY ON WELLS FOR THEIR WATER SUPPLY. HIGH NITRATE LEVELS ARE TOXIC, AND HAVE BEEN DIRECTLY LINKED TO THE CONDITION COMMONLY REFERRED TO AS "BLUE BABY SYNDROME" IN INFANTS. HIGH NITRATE LEVELS CAN ALSO IRRITATE THE LININGS OF THE GASTROINTESTINAL TRACT IN ADULTS.

BEYOND THE CONCERNS REGARDING WATER QUALITY IN CENTRAL SOUTH DAKOTA, THERE IS THE MATTER OF QUANTITY. FARMERS AND RANCHERS IN THIS AREA RELY ON EXISTING SURFACE WATER SUPPLIES -- USUALLY STOCK DAMS OR DUGOUTS -- TO WATER LIVESTOCK. DURING YEARS OF NORMAL OR ABOVE NORMAL RUNOFF, THESE PROVIDE RELATIVELY GOOD-QUALITY WATER IN TERMS OF MINERAL CONTENT. DURING PERIODS OF BELOW NORMAL RUN-OFF, SUCH AS THE LAST FOUR YEARS OF MODERATE TO SEVERE DROUGHT CONDITIONS, THE WATER SUPPLY IS SIGNIFICANTLY REDUCED. THE BACTERIA CONTENT OF THESE SUPPLIES IS USUALLY HIGH. RUNOFF WATER IS CONTAMINATED BY ANIMAL WASTES AND OTHER URGANICS, A PROBLEM EXACERBATED IN DRY YEARS.

THE SOLUTION TO THESE PROBLEMS IS A RURAL WATER SUPPLY SYSTEM. AS ONE OF THE NATION'S MOST RURAL STATES, SOUTH DAKOTA HAS BEEN A LEADER IN THE DEVELOPMENT OF RURAL WATER SYSTEMS. WE ALREADY HAVE ONE OF THE MOST EXTENSIVE RURAL WATER SYSTEMS IN THE COUNTRY. DURING THE NEXT 24 MONTHS, SOUTH DAKOTA ANTICIPATES SEEING THE COMPLETION OF THE WEB SYSTEM, AND THE START OF CONSTRUCTION ON THE MNI WICONI PROJECT. PROJECTS OF SUCH MAGNITUDE DEMONSTRATE SOUTH DAKOTA'S LEADERSHIP IN CONTEMPORARY WATER DEVELOPMENT.

MID-DAKOTA IS A PROJECT OF SIMILAR SIZE AND SCOPE. AS PROPOSED, MID-DAKOTA UTILIZES TWO INTAKES IN THE OAHE RESERVOIR AND OVER 2,700 MILES OF PIPELINE. THE SYSTEM RUNS EAST OF THE MISSOURI RIVER OVER 125 MILES AND COVERS OVER 80 MILES NORTH TO SOUTH. WE HAVE SPENT OVER A QUARTER OF A MILLION DOLLARS PREPARING THE NECESSARY PLANS FOR THE MID-DAKOTA PROJECT WITHOUT ANY FEDERAL MATCHING FUNDS FOR THESE EFFORTS. CURRENT ESTIMATES

PLACE THE COST OF THE MID-DAKOTA SYSTEM AT $108.4 MILLION. OBVIOUSLY, SIGNIFICANT FEDERAL ASSISTANCE IS NEEDED TO MAKE THE AVAILABILITY OF GOOD QUALITY DRINKING WATER IN SUFFICIENT QUANTITIES A REALITY FOR THIS AREA.

ON BEHALF OF THE STATE OF SOUTH DAKOTA AND THE MID-DAKOTA RURAL WATER SYSTEM, I HAVE SUBMITTED A FORMAL COST SHARING PROPOSAL FOR THIS PROJECT. THE STATE OF SOUTH DAKOTA WILL PROVIDE $5.0 MILLION FOR THE MID-DAKOTA PROJECT WHICH COMBINED WITH A PAYMENT CAPABILITY OF THE LOCAL PROJECT SPONSORS PROVIDES 29.2% OF THE TOTAL 1989 PROJECT COSTS. AS DRAFTED, S. 1765 WILL ENABLE THE LOCAL PROJECT SPONSORS TO PAY FOR $26.66 MILLION FOR A NONFEDERAL COST SHARE EFFORT OF $31.66 MILLION. THIS COST SHARE PACKAGE REPRESENTS A TRUE COMMITMENT AND EARNEST DETERMINATION OF THE STATE AND LOCAL PROJECT SPONSORS TO SECURE DEVELOPMENT OF THIS PROJECT.

THROUGHOUT THIS COUNTRY, WATER DEVELOPMENT IS IN TRANSITION. AT EVERY LEVEL -- LOCAL, STATE, AND FEDERAL -- PEOPLE ARE RETHINKING AND WORKING TO RESHAPE TRADITIONAL WATER DEVELOPMENT IN AN EFFORT TO MEET OUR CONTEMPORARY WATER NEEDS. IN AUGUST OF 1987, I ANNOUNCED A WATER INITIATIVE AS A MEANS TO DEFINE SOUTH DAKOTA'S CONTEMPORARY WATER DEVELOPMENT NEEDS. THE INITIATIVE WAS FOUNDED ON THE REALIZATION THAT LARGE-SCALE IRRIGATION PROJECTS FACE SERIOUS ECONOMIC AND POLITICAL OBSTACLES AT BOTH THE STATE AND FEDERAL LEVELS AND THAT THE STATE'S CONTEMPORARY WATER DEVELOPMENT NEEDS HAVE CHANGED FROM PROJECTS DEALING SOLELY WITH LARGE-SCALE IRRIGATION TO ONES HAVING A COMBINATION OF IRRIGATION, WATER SUPPLY, RECREATION, AND OTHER USES.

NATIONALLY, LEADERS IN CONGRESS AND THE EXECUTIVE BRANCH ARE WORKING TO REDEFINE THE ROLE OF THE FEDERAL GOVERNMENT IN WATER DEVELOPMENT. THE BUREAU OF RECLAMATION'S ROLE IN FEDERAL WATER DEVELOPMENT IS IN TRANSITION. THE BUREAU'S NEW DIRECTION AND PRIORITIES INCLUDE WATER CONSERVATION, WATER QUALITY AND SUPPLY, GROUND-WATER MANAGEMENT, AND RESEARCH. RECLAMATION COMMISSIONER DENNIS UNDERWOOD RECENTLY STATED THAT HE WANTS THE BUREAU TO CONCENTRATE ON PROVIDING CLEAN WATER TO RURAL AS WELL AS URBAN RESIDENTS AND STRENGTHENING BUREAU RESEARCH EFFORTS. IN PARTNERSHIP WITH RECLAMATION, SOUTH DAKOTA IS POISED TO PROVIDE LEADERSHIP INTO THE NEXT CENTURY THROUGH CONTINUED DEVELOPMENT OF RURAL WATER SYSTEMS

AND IRRIGATION AND GROUND WATER RESEARCH EFFORTS. SOUTH DAKOTA'S PARTICIPATION IN SETTING THE CONTEMPORARY WATER DEVELOPMENT AGENDA IS POSSIBLE ONLY BECAUSE OF UNPRECEDENTED COOPERATION AMONG MANY DIVERSE INTEREST GROUPS.

S. 1765 CONTAINS SEVERAL EXAMPLES OF THIS COOPERATION. THE AGREEMENT BETWEEN THE LOCAL SPONSORS, PUBLIC POWER COMMUNITY, AND STATE REGARDING THE USE OF PICK-SLOAN POWER FOR PUMPING PURPOSES IS HISTORIC IN NATURE. PUBLIC POWER SHOULD BE COMMENDED FOR THEIR LEADERSHIP IN THIS MATTER. UNDER THE AGREEMENT, THE MID-DAKOTA RURAL WATER SYSTEM WILL BE ABLE TO UTILIZE LOW-COST PICK-SLOAN HYDROPOWER DURING THE SUMMER MONTHS AND A LOCAL RURAL ELECTRIC POWER SUPPLY DURING THE REMAINDER OF THE YEAR FOR LIFT PUMPING AND PRESSURIZATION OF THE TRUNK LINE OF THE SYSTEM. THIS AGREEMENT SIGNIFIES A RENEWED EFFORT ON THE PART OF PUBLIC POWER AND THE STATE TO REVITALIZE PICK-SLOAN'S ROLE IN THE MISSOURI RIVER REGION.

MID-DAKOTA'S WETLAND DEVELOPMENT AND ENHANCEMENT COMPONENT PLAN IS ANOTHER EXAMPLE OF ADDRESSING CONTEMPORARY WATER DEVELOPMENT NEEDS ON A BASIS OF COOPERATION AND UNITY. I BELIEVE WATER DEVELOPMENT AND WILDLIFE ENHANCEMENT MUST GO FORWARD HAND-IN-HAND. THE WETLANDS DEVELOPMENT COMPONENT ASSOCIATED WITH THE MID-DAKOTA PROJECT IS UNIQUE. IT PROPOSES TO UTILIZE BOTH THE RESOURCES OF THE RURAL WATER SYSTEM AND ENVIRONMENT TO ENHANCE, RESTORE, AND CREATE WETLAND ACRES. THE WETLAND PROPOSAL WAS DEVELOPED WITH THE DIRECT INVOLVEMENT OF MANY WILDLIFE ORGANIZATIONS INCLUDING THE U.S. FISH AND WILDLIFE SERVICE, SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS, THE NATIONAL WILDLIFE FEDERATION, DUCKS UNLIMITED, THE NATIONAL AUDUBON SOCIETY, AND SOUTH DAKOTA STATE UNIVERSITY.

THE PROPOSED MID-DAKOTA RURAL WATER SYSTEM WILL BENEFIT NOT ONLY THE RESIDENTS OF THAT AREA OF SOUTH DAKOTA SERVED BY THE SYSTEM, BUT ALSO INDIVIDUALS IN THE REGION -- AND, INDEED, ACROSS THE COUNTRY -- DIRECTLY AND INDIRECTLY, IMMEDIATELY AND FOR YEARS TO COME. SOUTH DAKOTA FARMERS AND RANCHERS PROVIDE BEEF, LAMB, PORK, POULTRY, AND DAIRY PRODUCTS TO GROCERY STORES AND SUPERMARKETS ACROSS THE U.S. A BETTER, SAFER, AND MORE DEPENDABLE WATER SUPPLY IN SULLY COUNTY, SOUTH DAKOTA, MEANS HEALTHIER LIVESTOCK PRODUCED MORE EFFICIENTLY. AND THAT MEANS A BETTER SUPPLY OF

HIGH-QUALITY FOOD PRODUCTS IN CALIFORNIA OR MAINE OR THE DISTRICT OF COLUMBIA. RURAL ECONOMIC DEVELOPMENT WILL BENEFIT BY ALLOWING EXISTING BUSINESSES THAT ARE NOW LIMITED BY THEIR WATER SUPPLY TO EXPAND. THE POSSIBILITY OF THE LOCATION OF NEW BUSINESSES IN THE AREA WILL BE ENHANCED WITH THE MID-DAKOTA SYSTEM IN PLACE.

ADDITIONALLY, THE CONSTRUCTION OF THE MID-DAKOTA RURAL WATER SYSTEM WILL REQUIRE MANPOWER, EQUIPMENT, SUPPLIES, AND EXPERTISE FROM STATES BESIDES SOUTH DAKOTA. THAT MEANS IMMEDIATE ECONOMIC BENEFITS TO HUNDREDS OF PEOPLE BEYOND THE PROJECT AREA, BEYOND THE BORDERS OF SOUTH DAKOTA, AND BEYOND THE MIDWEST. THE WEB PROJECT IN NORTH CENTRAL SOUTH DAKOTA WITH CONSTRUCTION COSTS OF $114 MILLION PROVIDES A USEFUL COMPARISON. WEB HAS SUB-CONTRACTS GOING TO FIRMS FROM MASSACHUSETTS TO CALIFORNIA INCLUDING EIGHT FROM KANSAS AND 3 EACH FORM NORTH DAKOTA AND MICHIGAN.

WHEN THE UNITED STATES ENACTED THE SAFE DRINKING WATER ACT, IT WAS A RECOGNITION OF THE FACT THAT THE NATIONS' DRINKING WATER RESOURCES ARE FINITE. IT IS A RESOURCE VITAL TO EVERYONE, AND THE RESPONSIBILITY OF ALL TO SEE THAT THE ULTIMATE GOAL IS REACHED -- A NATION WHOSE WATER SUPPLY CAN BE SAFELY CONSUMED. THE MID-DAKOTA RURAL WATER SYSTEM WILL CONTRIBUTE TOWARDS ACCOMPLISHING THIS GOAL.

THE MISSOURI RIVER IS THE LAST MAJOR UNAPPROPRIATED RIVER IN THE WEST. WE MUST CONTINUE TO PUT THIS RIVER TO WORK FOR SOUTH DAKOTA, THE MISSOURI RIVER BASIN, AND THE COUNTRY. THE MID-DAKOTA RURAL WATER SYSTEM IS A PROJECT THAT CAN PROVIDE GREAT BENEFITS TO THIS COUNTRY. MID-DAKOTA HAS DEVELOPED A VIABLE PROJECT PLAN TO THE SATISFACTION OF THE BUREAU OF RECLAMATION; AN INNOVATIVE WILDLIFE COMPONENT DEVELOPED IN CONSULTATION WITH NATIONAL AND STATE WILDLIFE ORGANIZATIONS IS IN PLACE; AND A CREDIBLE COST SHARING PLAN HAS BEEN PRESENTED FOR YOUR CONSIDERATION. MID-DAKOTA IS A WORKABLE, CONTEMPORARY WATER DEVELOPMENT PROJECT. WE LOOK FORWARD TO WORKING WITH THE CONGRESS, PUBLIC POWER INTERESTS, ENVIRONMENTAL GROUPS, AND OTHERS IN CONSTRUCTING AND MANAGING THIS IMPORTANT PROJECT.

I WOULD APPRECIATE YOUR YOUR CONSIDERATION AND SUPPORT OF THE MID-DAKOTA AUTHORIZATION LEGISLATION.

TESTIMONY OF

GEORGE S. MICKELSON

GOVERNOR

STATE OF SOUTH DAKOTA

ON S. 2710

LAKE ANDES-WAGNER/MARTY II UNITS

SUBMITTED TO THE

WATER AND POWER SUBCOMMITTEE

ENERGY AND NATURAL RESOURCES COMMITTEE

UNITED STATES SENATE

JUNE 19, 1990

I AM SUBMITTING THIS WRITTEN TESTIMONY IN SUPPORT OF S.2710, A BILL WHICH WILL PROVIDE FOR THE DEVELOPMENT OF THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION RESEARCH PROGRAM AND AUTHORIZE CONSTRUCTION OF THE LAKE ANDES-WAGNER AND MARTY II IRRIGATION PROJECTS IN SOUTH CENTRAL SOUTH DAKOTA.

TEN MONTHS AGO I SAT BEFORE THE SENATE WATER AND POWER SUBCOMMITTEE AND PROVIDED MY TESTIMONY IN SUPPORT OF THESE TWO IRRIGATION PROJECTS. A FEW WEEKS AFTER THAT HEARING, THE UNITED STATES BUREAU OF RECLAMATION IDENTIFIED THE PRESENCE OF THE ELEMENT SELENIUM WITHIN THE PROJECT AREAS. TODAY I TESTIFY EVEN MORE EMPHATICALLY THAN IN THE PAST FOR THE DEVELOPMENT OF THESE PROJECTS CONTINGENT, HOWEVER, UPON THE FINDINGS OF A DEMONSTRATION RESEARCH PROGRAM FOR THE LAKE ANDES-WAGNER AND MARTY II UNITS.

THE DEMONSTRATION RESEARCH PROGRAM IS REPRESENTATIVE OF THE TRANSITION OCCURRING IN WATER RESOURCE DEVELOPMENT THROUGHOUT THE NATION. A TRANSITION WHICH INCLUDES A NEW SENSITIVITY TO THE ENVIRONMENTAL EFFECTS OF WATER RESOURCE DEVELOPMENT, THAT ADDRESSES THE CONTEMPORARY WATER RESOURCE NEEDS OF THE NATION, AND THAT REFLECTS A NEW ERA OF COOPERATION AMONG LOCAL, STATE, TRIBAL, AND FEDERAL INTERESTS. REPRESENTATIVES OF THE LAKE ANDES-WAGNER IRRIGATION PROJECT, THE YANKTON-SIOUX TRIBE, THE SOUTH DAKOTA DEPARTMENT OF WATER AND NATURAL RESOURCES, THE SOUTH DAKOTA DEPARTMENT OF GAME FISH AND PARKS, THE UNITED STATES BUREAU OF INDIAN AFFAIRS, THE UNITED STATES FISH AND WILDLIFE SERVICE, THE UNITED STATES BUREAU OF RECLAMATION, AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY HAVE JOINTLY PREPARED AND AGREED UPON THE PARAMETERS OF THIS RESEARCH PROPOSAL. THIS PLANNING

EFFORT AND THE FINDINGS WHICH WILL BE GENERATED BY THIS RESEARCH ARE UNPARALLELED IN MODERN DAY WATER RESOURCE DEVELOPMENT.

THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM IS A 5,000 ACRE RESEARCH EFFORT DESIGNED TO DETERMINE THE DRAINAGE PROPERTIES OF GLACIAL TILL SOILS, THE EFFECTS OF IRRIGATION ON SELENIUM MOVEMENT WITHIN THESE SOILS TYPES, TREATMENT METHODS FOR ELEVATED LEVELS OF SELENIUM IN SURFACE WATERS, AND WETLAND AND WILDLIFE ENHANCEMENT ACTIVITIES WHICH CAN BE IMPLEMENTED IN AREAS HAVING HIGH LEVELS OF NATURALLY OCCURRING SELENIUM. RESEARCH IS DESPERATELY NEEDED IN THESE AREAS, NOT JUST FOR SOUTH DAKOTA, BUT FOR MOST OF THE WESTERN UNITED STATES WHERE ELEVATED LEVELS OF SELENIUM EXIST WHICH CAN HAVE DEVASTATING ENVIRONMENTAL CONSEQUENCES.

THE FINDINGS OF THE DEMONSTRATION PROGRAM WILL BE FORWARDED TO CONGRESS AND IF IT IS DETERMINED THAT SELENIFEROUS GLACIAL TILL SOIL CAN BE IRRIGATED WITHOUT ADVERSELY AFFECTING THE ENVIRONMENT, S.2710 AUTHORIZES THE DEVELOPMENT OF THE 45,000 ACRE LAKE ANDES-WAGNER IRRIGATION PROJECT AND THE 3,000 ACRE MARTY II IRRIGATION PROJECT.

WE IN SOUTH DAKOTA ARE FIERCELY PROTECTIVE OF THE ENVIRONMENT AND ARE ACTIVE IN MAINTAINING, PROTECTING, AND IMPROVING WILDLIFE, ENVIRONMENTAL AND AESTHETIC RESOURCES. THE DEMONSTRATION RESEARCH EFFORT PROPOSED FOR THE LAKE ANDES-WAGNER AND MARTY II PROJECTS IS A REFLECTION OF OUR CONCERN FOR THE ENVIRONMENT AND OUR INTEREST IN ENHANCING WETLAND AND WILDLIFE RESOURCES.

SOUTH DAKOTA HAS ALREADY ACCOMPLISHED A GREAT DEAL IN THE AREA OF WETLANDS RESTORATION AND WE PLAN TO DO MORE. SOUTH DAKOTA HAS IDENTIFIED SEVERAL POTENTIAL PROJECTS WHICH WOULD IMPROVE MIGRATORY WATERFOWL HABITAT OF THE CENTRAL FLYWAY THROUGH WETLAND AND RIPARIAN RESTORATION. THE STATE HAS RECENTLY ENTERED INTO A MULTI-PARTY AGREEMENT WITH THE U.S. FISH AND WILDLIFE SERVICE, THE NATIONAL WILDLIFE FEDERATION, AND DUCKS UNLIMITED FOR A WETLANDS RESTORATION PROJECT AT LAKE THOMPSON AS PART OF THE NORTH AMERICAN WATERFOWL MANAGEMENT PLAN. SEVERAL OTHER PROJECTS HAVE BEEN PROPOSED WHICH WOULD SIGNIFICANTLY INCREASE THE NUMBER OF WETLAND ACRES IN THE CENTRAL FLYWAY. WE BELIEVE WILDLIFE ENHANCEMENT AND WATER DEVELOPMENT SHOULD GO HAND-IN-HAND AND ARE COMMITTED TO INCORPORATING WILDLIFE ENHANCEMENT COMPONENTS INTO THE LAKE ANDES-WAGNER AND MARTY II PROJECTS.

THE LAKE ANDES-WAGNER UNIT IS A RELATIVELY SMALL IRRIGATION PROJECT BY TRADITIONAL BUREAU OF RECLAMATION STANDARDS, BUT THE PROJECT WILL HAVE A MAJOR, POSITIVE ECONOMIC IMPACT IN THE LOCAL PROJECT AREA. IT ALSO DEMONSTRATES A COOPERATIVE EFFORT BY THE STATE OF SOUTH DAKOTA AND YANKTON SIOUX TRIBE TO ADDRESS THE DISTRESSING ECONOMIC CONDITIONS ON THE YANKTON SIOUX RESERVATION. ANNUAL PER CAPITA INCOME ON THE RESERVATION IS $1,213 AND UNEMPLOYMENT IS NEARLY 90 PERCENT. IN COMPARISON, THE REGIONAL UNEMPLOYMENT RATE IS 10 PERCENT. ADDITIONALLY, ECONOMIC DEVELOPMENT OPPORTUNITIES WILL BE SEEN THROUGHOUT CHARLES MIX COUNTY AND ADJACENT COUNTIES.

THE MARTY II UNIT IS A PROPOSED 3,000-ACRE INDIAN IRRIGATION PROJECT FOR THE YANKTON SIOUX TRIBE, LOCATED APPROXIMATELY FIVE MILES SOUTHWEST OF THE LAKE ANDES-WAGNER PROJECT. THE MARTY II STUDY WAS

INITIATED AS PART OF A COOPERATIVE EFFORT AMONG THE YANKTON SIOUX TRIBE, THE BUREAU OF INDIAN AFFAIRS, THE LAKE ANDES-WAGNER IRRIGATION PROJECT, AND THE STATE OF SOUTH DAKOTA. A $180,000 STUDY EFFORT BEGAN IN THE SPRING OF 1988 AND WAS CONCLUDED IN 1990 BY THE U.S. BUREAU OF RECLAMATION. THE MARTY II PROJECT IS ENVISIONED AS AN ECONOMIC OPPORTUNITY FOR THE YANKTON SIOUX TRIBE. IN ADDITION, APPROXIMATELY 1,700 ACRES OF INDIAN-OWNED LANDS WITHIN THE LAKE ANDES-WAGNER PROJECT WILL BE DEVELOPED AS PART OF THE LAKE ANDES-WAGNER UNIT. THE BENEFITS TO THE YANKTON SIOUX TRIBE FROM THE LAKE ANDES-WAGNER AND MARTY II IRRIGATION PROJECTS INCLUDE 4700 ACRES OF IRRIGATED LAND, PROJECT-GENERATED EMPLOYMENT, AND ASSOCIATED RURAL ECONOMIC DEVELOPMENT.

THE LEGISLATION, AS DRAFTED, CONTAINS A UNIQUE PROVISION WHICH ELIMINATES DOUBLE SUBSIDIES OF SURPLUS CROPS, AND ENCOURAGES THE DEVELOPMENT OF ALTERNATIVE CROPS. IN SUPPORT OF THIS OBJECTIVE, SPECIAL ATTENTION TO DEVELOPING ALTERNATIVE CROPPING IS PROVIDED IN THE DEMONSTRATION PROGRAM.

I AM COMMITTED TO WATER RESOURCE DEVELOPMENT AS AN IMPORTANT COMPONENT OF SOUTH DAKOTA'S ECONOMIC DEVELOPMENT PLAN. IN 1987, I IMPLEMENTED THE SOUTH DAKOTA WATER INITIATIVE IN AN EFFORT TO UNIFY THE STATE ON A COMMON WATER DEVELOPMENT AGENDA AND ADDRESS THE CONTEMPORARY WATER DEVELOPMENT NEEDS IN SOUTH DAKOTA. UTILIZING INPUT FROM CITIZENS ACROSS THE STATE, THE SOUTH DAKOTA BOARD OF WATER AND NATURAL RESOURCES COMPLETED AN IN-DEPTH STUDY OF THE CONTEMPORARY WATER DEVELOPMENT NEEDS AND RECOMMENDED SEVERAL WATER RESOURCE DEVELOPMENT PROJECTS. THIS PROJECT LIST SERVED AS THE BASIS FOR LEGISLATION PASSED UNANIMOUSLY BY THE SOUTH DAKOTA

STATE LEGISLATURE IN 1988 WHICH DIRECTED THE EXECUTIVE BRANCH TO PROCEED AS QUICKLY AS POSSIBLE TO PURSUE CONTEMPORARY SOUTH DAKOTA WATER PROJECTS AND ACCOMPLISH THE RURAL ECONOMIC DEVELOPMENT OBJECTIVE OF THE 1944 FLOOD CONTROL ACT. THE LEGISLATION ALSO ESTABLISHED THE MISSOURI RIVER COST RECOVERY AUTHORITY WHICH WAS CHARGED WITH THE RESPONSIBILITY OF EVALUATING, ANALYZING AND RECOMMENDING REVENUE GENERATING OPTIONS UNDER THE MISSOURI RIVER COST RECOVERY PROGRAM.

SOUTH DAKOTANS REALIZE THAT TRADITIONAL LARGE-SCALE PICK-SLOAN IRRIGATION DEVELOPMENT IS NOT REALISTIC GIVEN CURRENT ENVIRONMENTAL, ECONOMIC, AND POLITICAL CONDITIONS, AND THAT WATER DEVELOPMENT TODAY OPERATES UNDER A MUCH DIFFERENT SET OF RULES THAN IN THE 1940s AND 1950s. THE SOUTH DAKOTA PICK-SLOAN WATER INITIATIVE RECOGNIZES AND IDENTIFIES CONTEMPORARY WATER PROJECTS SUCH AS SMALL SCALE IRRIGATION PROJECTS LIKE THE LAKE ANDES-WAGNER AND MARTY II UNITS, THE REHABILITATION OF EXISTING SYSTEMS LIKE THE BELLE FOURCHE IRRIGATION PROJECT, THE DEVELOPMENT OF RURAL DOMESTIC WATER SUPPLY SYSTEMS LIKE WEB, MNI WICONI, AND MID-DAKOTA, AND THE NEED FOR FISH AND WILDLIFE ENHANCEMENT.

SOUTH DAKOTA RECOGNIZES THE NEED FOR CHANGES IN NATIONAL WATER DEVELOPMENT POLICY, AND WE SUPPORT THIS NEW DIRECTION. THE UNITED STATES CONGRESS AND SOUTH DAKOTA HAVE WORKED TOGETHER IN THE PAST TO DEVELOP UNIQUE WATER DEVELOPMENT PROJECTS THAT BENEFIT OUR STATE AND NATION. THE RECENTLY AUTHORIZED MNI WICONI RURAL WATER SYSTEM AND THE MID-DAKOTA RURAL WATER SYSTEM, WHOSE AUTHORIZING LEGISLATION IS PRESENTLY BEFORE CONGRESS, ARE EXCELLENT EXAMPLES OF CONTEMPORARY PROJECTS PROPOSED FOR CONSTRUCTION BY THE BUREAU OF RECLAMATION. EXPANSIONS AND IMPROVEMENTS TO EXISTING

RURAL AND MUNICIPAL WATER SUPPLY SYSTEMS ARE ALSO NEEDED TO ELIMINATE PUBLIC HEALTH PROBLEMS AND HELP STABILIZE OR IMPROVE THE ECONOMY OF THE STATE. SOUTH DAKOTA IS COMMITTED TO WORKING WITH CONGRESS AND FEDERAL AGENCIES TO CONTINUE TO ADDRESS THESE NEEDS.

I WISH TO EMPHASIZE THE LAKE ANDES-WAGNER AND MARTY II PROJECTS WILL CONTRIBUTE TO THE RURAL ECONOMIC DEVELOPMENT OF SOUTH DAKOTA AS ENVISIONED BY THE FEDERAL GOVERNMENT AND THE MISSOURI RIVER BASIN STATES WHEN THE PICK-SLOAN PLAN WAS ADOPTED IN 1944. OTHER BENEFICIAL WATER USES, SUCH AS INDUSTRIAL AND DOMESTIC WATER SUPPLIES, WERE ALSO INCLUDED AS OBJECTIVES OF THE PICK-SLOAN PLAN. ECONOMIC REHABILITATION IS ONE OF THE COMMITMENTS THIS NATION MADE TO THE UPPER MISSOURI RIVER BASIN WHEN THE PICK-SLOAN PLAN WAS ADOPTED. WHILE THE INTENDED IRRIGATION HAS YET TO MATERIALIZE IN SOUTH DAKOTA, THE FUNDAMENTAL ECONOMIC DEVELOPMENT GOALS ARE AS VALID TODAY AS THEY WERE IN 1944.

THE LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM AND THE RESPECTIVE IRRIGATION PROJECTS ARE CONTEMPORARY, WORKABLE, ENDEAVORS. THE DEMONSTRATION PROGRAM WILL PROVIDE BADLY NEEDED ANSWERS TO SOME DIFFICULT QUESTIONS CONCERNING IRRIGATION OF SELENIFEROUS GLACIAL TILL SOILS, WETLAND AND WILDLIFE ENHANCEMENT ACTIVITIES WHICH CAN BE SAFELY UNDERTAKEN IN AREAS OF HIGH LEVELS OF NATURALLY OCCURRING SELENIUM, AND POTENTIAL TREATMENT METHODS FOR REDUCING OR ELIMINATING SELENIUM IN SURFACE WATER. THESE ANSWERS WILL HAVE AN IMPACT ON WETLAND DEVELOPMENT, WILDLIFE ENHANCEMENT, AND FUTURE IRRIGATION DEVELOPMENT THROUGHOUT THE WESTERN UNITED STATES. IF WE AT THE STATE AND FEDERAL GOVERNMENT LEVELS ARE GOING TO PROVIDE THE NEEDED INCENTIVES TO DEVELOP AND STABILIZE THE ECONOMIES OF OUR RURAL

COMMUNITIES, WE MUST RECOGNIZE THAT IRRIGATION WILL PLAY A MAJOR ROLE IN AGRICULTURALLY-BASED ECONOMIES SUCH AS SOUTH DAKOTA. YEARS OF PLANNING HAVE RESULTED IN A PROJECT WITH MANY INNOVATIVE FEATURES DESIGNED TO AVOID DOUBLE SUBSIDIES FOR SURPLUS COPS, PROVIDE WATER CONSERVATION DURING IRRIGATION, AND RECOGNIZE THE IMPORTANCE OF WILDLIFE ENHANCEMENT AS AN IMPORTANT COMPONENT OF IRRIGATION PROJECTS. THESE BENEFITS, AND THE OBVIOUS RURAL AND TRIBAL ECONOMIC DEVELOPMENT BENEFITS, JUSTIFY YOUR SUPPORT. WE LOOK FORWARD TO WORKING WITH CONGRESS, PUBLIC POWER INTERESTS, ENVIRONMENTAL GROUPS AND OTHERS IN DEVELOPING, CONSTRUCTING, AND MANAGING THIS IMPORTANT PROJECT.

Senator BRADLEY. Thank you very much for your testimony, Mr. Bell. I will just have one or two questions. In the demonstration program and the Lake Andes project, most of them seem to use project facilities and water to benefit the Red Lake game production area. Is that a State-owned and managed area? It is my understanding it is a State-owned and managed area.

Mr. BELL. I believe that is correct.

Senator BRADLEY. Should not the State pick up some of the cost for this feature of the program?

Mr. BELL. You know, I would like, if I may, Mr. Chairman, to defer some of those questions to the project sponsor, if I may.

Senator BRADLEY. Are you speaking for the Governor? You are the Governor's representative.

Mr. BELL. I am the Governor's representative. I would like to call on the staff on this.

Senator BRADLEY. Oh. Okay, fine.

Mr. BELL. Would you repeat the question?

Senator BRADLEY. The Lake Andes project and the demonstration project both contemplate using project facilities and water to benefit Red Lake game production area. Now, that is State area, a State-owned and managed area.

Mr. POWELL. Yes, it is, Mr. Chairman.

Senator BRADLEY. My question is, should not the State pick up some of the costs of this feature of the program, and what do you think it will cost, and could you identify yourself?

Mr. POWELL. I am Greg Powell with the South Dakota Department of Water and Natural Resources.

I am not sure what the cost will be to provide water to that facility. I do not think the cost has been figured out on how much water would be provided to that facility at this time on a cost per acre foot basis.

As far as the State providing cost share on that effort, providing water to Red Lake would provide benefits to the migratory waterfowl of that area. The migratory waterfowl are a national commodity, if you will, and we believe that that should be a Federal expense to provide water for that purpose.

Senator BRADLEY. Thank you for your honesty. I do not have any other questions.

Senator Burns.

Senator BURNS. I have just a couple of questions. I am looking at the Mid-Dakota plans. I assume that what you have drawn up here, is this an open irrigation waterway?

Mr. BELL. It is pipeline.

Senator BURNS. That is pretty big country out there. In other words, I guess it starts over on the Missouri River, taking water out of the Missouri River and dumping it into the James River. Is that where the overflow would go?

Mr. POWELL. No, sir.

Senator BURNS. In other words, there would be none into the James River?

Mr. POWELL. No, sir.

Senator BURNS. How many irrigation projects are, say in this—what is it, about a seven-county area now, from Huron over to the

river? Do you know how many acres are under irrigation in those county areas now?

Mr. POWELL. No, sir, we do not. We could provide that information to you.

Senator BURNS. And their source of water, where they are getting it now?

Mr. BELL. It is ground water, wells for irrigation. Generally center-pivot type irrigation. This particular project in central Dakota is strictly for drinking water purposes.

Senator BURNS. In other words, none will be used for irrigation in this area here, is that correct?

Mr. BELL. That is correct.

Senator BURNS. Thank you very much.

Senator BRADLEY. Thank you very much, Mr. Bell, for your testimony. We are now joined by Senator Pressler. Senator Pressler, welcome to the Subcommittee, and we are pleased to receive your testimony. We are trying to limit it to 5 minutes.

STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM SOUTH DAKOTA

Senator PRESSLER. I had planned to talk for 2 hours here.

[Laughter.]

Senator BRADLEY. As a Senator, you have the right to speak as long as you want.

Senator PRESSLER. I will limit my remarks because the presentations by my two colleagues and the eloquence of my constituents would exceed mine, so I am going to place my statement in the record.

But I would say that I strongly endorse the projects, and I thank the Committee for considering them. In our State of South Dakota the issue of clean drinking water is a very key issue. A lot of our smaller towns have pollutants of one sort or another in their natural water supply.

I have recently been on the Indian reservation west of the river, which—that is a separate issue, the Mni Wiconi. We are talking about the Mid-Dakota here, Lake Andes-Wagner and Marty II. We do have water problems. We are trying to use the Missouri River. We feel our State has given up a lot in terms of the dams that were built there, in terms of the acres that were used, and we do want to use the Missouri River water more wisely in our State, Mr. Chairman.

I have a lengthy statement here, but in view of the fact that my constituents have made probably the same presentation, and Senator Daschle and Congressman Johnson have, I would ask to submit my statement for the record and I will be talking to you individually about these projects.

[The prepared statement of Senator Pressler follows:]

STATEMENT OF SENATOR LARRY PRESSLER
BEFORE THE
SUBCOMMITTEE ON WATER AND POWER
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
JUNE 19, 1990

Mr. Chairman, as a cosponsor of S. 2710, the authorization for the Lake Andes Wagner/Marty II irrigation projects and S. 1765, the Mid-Dakota Rural Water System Act of 1989, I want to thank the committee for scheduling this important hearing. I also want to thank you for giving me and other South Dakotans an opportunity to express our support for these projects.

Authorization and funding of these two proposed water projects would be beneficial to local, state, and national interests. Both projects would contribute to wildlife enhancement through extensive wetlands development. The Mid-Dakota project would enhance existing wetlands utilizing both untreated and treated water, develop constructed wetlands, and restore drained wetlands. Several wildlife

organizations, the South Dakota Game, Fish and Parks and the U.S. Fish and Wildlife Service have been directly involved in the development of the projects' wetlands enhancement components.

The Lake Andes Wagner/Marty II Research Demonstration Program would study subsurface drainage requirements and return flow quantity and quality. The program would study the effects of irrigating soils containing selenium, as well as provide data on agricultural non-point source pollution. Data gained from this demonstration project could be used in many other areas of the United States.

The proposed Mid-Dakota Rural Water System would provide clean, safe drinking water to 29,000 people and 650,000 head of livestock in a 7,000 square mile, twelve-county area in central South Dakota. The proposed pipeline project is the only feasible means of providing the area with good quality water. Twenty-three towns within the Mid-Dakota area presently fail at least one EPA drinking water

standard. If we as a Congress are at all concerned about human health and environmental protection, then we cannot overlook the tremendous need that would be met by this proposed rural water project. We have a responsibility to protect the health of the people we represent.

The completed Lake Andes/Wagner and Marty II irrigation project would pump water from Lake Francis Case on the Missouri River to irrigate 45,000 acres of farmland in South Central South Dakota. Irrigation water would be provided to private farmland as well as land owned by the Yankton Sioux Indian Tribe.

The Lake Andes/Wagner Irrigation project is aimed at assisting both Indian and non-Indian populations. One of the primary focuses of the Lake Andes/Wagner Irrigation project is to provide a reliable supply of water to farmers so that they can stabilize their livestock base and shift their production from surplus wheat and feed grains to alternative crops. Such a transition cannot occur without a reliable supply of

water. The development of alternative crops would benefit not only farmers but also other participants in the local economy. The Yankton Sioux Indian Tribe has land which would be irrigated by the project. These people would benefit from the off-farm jobs which would be created.

The last three years of drought and resulting shortage of feed has forced livestock sales by many producers. The proposed project would assure a stable feed supply to a large portion of South Dakota. Also, increased production of alternative crops such as potatoes, which can be successfully grown in the area, would mean fewer acres committed to federally subsidized program crops.

Water development in South Dakota has a long history. In the 1940s, South Dakota agreed to sacrifice over 500,000 acres of farmland for the construction of four mainstem dams on the Missouri River for hydroelectric power, flood control and navigation benefitting downstream states. In return for the sacrifices South Dakota made for the construction of the

dams, the federal government made a commitment to South Dakota. That commitment was to provide water development to the state. The federal commitment to South Dakota has not been fulfilled. The authorization of Mid-Dakota Rural Water System and Lake Andes Wagner/Marty II Irrigation project would achieve partial fulfillment of the federal commitment to South Dakota.

Mr. Chairman, these projects have my wholehearted support. I commend the managers, directors, and board members of these projects for their dedication and hard work against frequently great odds. These projects have overwhelming local and state support and both fill desperate water development needs in South Dakota, as well as serve the national interest.

I appreciate the time you have taken to conduct this hearing and urge your committee to keep the federal commitment to South Dakota in mind when it considers these

two bills authorizing South Dakota water projects. I hope that your committee will take early action on this important legislation.

Senator BRADLEY. Thank you very much, Senator Pressler, for your testimony.

We now have a panel of the administration. Dennis B. Underwood, Commissioner, of the Bureau of Reclamation, John N. Fischer, Associate Chief Hydrologist, U.S. Geological Survey, Robert Jacobsen, Assistant Regional Director, Fish and Wildlife, accompanied by Tom Jackson, and Max H. Dodson, Director of Water Management Division of the EPA, from the Denver regional office.

Welcome to the subcommittee, gentlemen, and let us begin with Mr. Underwood.

STATEMENT OF DENNIS B. UNDERWOOD, COMMISSIONER, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR, ON S. 2710

Mr. UNDERWOOD. What I would like to do is request that my written statements be made part of the record.

Senator BRADLEY. It will be made a part of the record.

Mr. UNDERWOOD. Would you like to have me talk about both bills at the same time?

Senator BRADLEY. No. If you do not mind, I would like you to focus only on S. 2710 and then we will have another shot at Mid-Dakota.

Mr. UNDERWOOD. Mr. Chairman, it is a pleasure for me to be here today to testify on two important major water resources management issues facing this Nation. Both of these deal with water quality. One is to provide for a safe and reliable water supply for rural America, and the other, S. 2710, deals with irrigation management and the best management practices for nonpoint source pollution control.

S. 2710 is to authorize the Secretary to construct and operate and maintain Lake Andes-Wagner Unit and Marty II Unit. The Administration's support for S. 2710 is contingent upon amendments to delete the authorization for the full-scale irrigation projects for the Lake Andes-Wagner and Marty II Units.

Senator BRADLEY. I did not get that.

Mr. UNDERWOOD. The Administration's support for S. 2710 is contingent upon amendments to delete authorization for full-scale irrigation. This is because field tests have indicated the presence of high levels of selenium throughout the Lake Andes-Wagner and Marty II project areas. Based on the findings, Reclamation does not feel it would be responsible to pursue irrigation development in these areas at this time.

However, Reclamation believes the demonstration program provided for in the bill is justified and has wide possible application. I think it represents a real opportunity to have a better understanding of the mechanics of salt movement, more specifically trace elements in different types of soils, which need to be studied and understood.

Movement of soluble selenium in the soil profile is poorly understood, and the demonstration program would provide valuable information on the transportability and chemistry of selenium, and it would also provide for the development and refinement of processes to remove or immobilize selenium, which could be extremely im-

portant considering the irrigation drainage problems that have occurred in the West. The demonstration also would provide insight as to how to deal with naturally occurring trace elements in glacial till and other low permeability soils and water.

Glacial till soils are common in Washington, Montana, Idaho, South Dakota and North Dakota. The demonstration would also provide for the development and transfer of the best management practices not only for irrigation and drainage, which result in water conservation and energy conservation, but also for the management of trace elements dealing with nonpoint source pollution.

It also has the opportunity to provide best management practice for other agriculture chemicals including fertilizer application, pesticide use, as well as other agricultural practices. It also provides for the opportunity for best management practices of wetlands relative to contaminants. I think it is important that these best management practices be developed and demonstrated in an actual, on-the-ground situation under controlled conditions.

There is good background information and no prior irrigation on the study sites. Generally, when you are doing these types of studies, it is in areas where you already have problems. It is very difficult to look at the soil profile and understand the mechanics of what happened with trace elements after a problem has already developed. This gives us a real opportunity to have a laboratory in the field. The information obtained also would help us determine whether irrigation should be permitted for certain types of soils.

The demonstration program has wide Federal, State and local support and should be cost-shared by the project beneficiaries. With respect to section 5 of the bill, we support the employment of native Americans wherever possible for the program, and would work with the Department of Labor in this regard.

In terms of the demonstration program itself, it does provide for six 640-acre land parcels with different types of irrigation treatments and cropping patterns. We would have some dry land control areas which we could measure the differences against. It would provide for the construction of temporary facilities. These would include pumping plants, pipelines, and drains. These facilities would be removed at the conclusion of the demonstration. However, there may be an opportunity for the facilities to be used for nonirrigation purposes at the conclusion of the demonstration.

I think what is also attractive about the demonstration project is that it has a relatively low construction cost and good water supply. It is a 9-year demonstration program with five years of basic operations to obtain data and at a cost of about $30 million. The product would be a report of findings. The plan of study for the demonstration was developed by the Bureau of Reclamation in cooperation with Federal, State and local entities, and it was conditioned on the idea that we would have full and unanimous support of all participants, and that has turned out to be the case.

In terms of the project itself, if the Congress decides to go ahead and give congressional approval of the units, I would suggest some conditions recommended by Reclamation during previous testimony be incorporated in that authorizing legislation. That would be: actual construction would not be authorized to begin until submission to the Congress by the Secretary of the Interior of a supple-

ment to the Planning Report and final Environmental Impact Statement, a finding that the project is both economically justified and environmentally feasible. Project authorization would be contingent on successfully demonstrating methods to prevent nonpoint source pollution as a result of toxic elements in the project soils, and project sponsors would have to enter into a legally binding agreement containing cost-sharing provisions acceptable to the Secretary.

In addition, there would be no authorization for new full service for non-Indian lands as part of the project. Basically, the project for non-Indians would be limited to lands that are presently being farmed. Repayment should be on a straight-line amortization schedule not to exceed 40 years following the development period of any irrigation assistance needed from hydroelectric power revenues for the project, as well as those costs allocated to irrigation for repayment by the water users.

In addition, the legislation should retain the provision that any crop program payments be based on pre-project dry land yields, and we also would suggest that S. 2710 be modified to provide the Secretary the authority to negotiate a cost-sharing agreement more favorable to the United States, including a provision for up-front cost-sharing.

Thank you.

[The prepared statement of Mr. Underwood follows:]

Statement of Dennis B. Underwood, Commissioner, Bureau of Reclamation, before the Subcommittee on Water and Power on S. 2710, a bill to "authorize the Secretary of the Interior to construct, operate, and maintain the Lake Andes-Wagner Unit and the Marty II Unit, South Dakota Pumping Division, Pick-Sloan Missouri Basin Program, South Dakota."

June 19, 1990

Mr. Chairman, I appreciate this opportunity to testify on S. 2710, a bill "to authorize the Secretary of the Interior to construct, operate, and maintain the Lake Andes-Wagner and the Marty II Units, South Dakota Pumping Division, Pick-Sloan Missouri Basin Program, South Dakota." The Administration opposes this bill unless amended as discussed below.

On December 15, 1987, and again on September 14, 1989, the Commissioner of Reclamation testified before this Committee on legislation similar to the bill being considered here today. On those previous occasions, Reclamation did not oppose authorization of the Lake Andes-Wagner Unit provided that the bill be amended to include--or retain--certain conditions as stated in the hearing record (S. Hrg. 101-328). I will refer to those conditions again later in my testimony.

In earlier testimony, the Bureau opposed authorization of the Marty II Unit primarily because the necessary water quality studies had not been completed. An important aspect of the studies included testing to determine the presence of trace elements in the soil and water within the boundaries of the proposed project area.

The studies are now complete. Test results indicate the presence of high levels of the trace element selenium throughout the Lake Andes-Wagner and Marty II project areas. Based on these findings, Reclamation does not believe it would be responsible to pursue Federal irrigation development in these areas of South Dakota at this time.

Administration support for S. 2710 is contingent upon amendments to delete authorization of the full-scale irrigation projects for Lake Andes-Wagner and Marty II. However, S. 2710 also contains authorization of a demonstration program which we believe has the potential of providing information on the effects of irrigation practices needed to deal with naturally-occurring trace elements in low permeability soils and in water. The findings may have applicability, not just in South Dakota, but in other areas of the Nation as well. The proposed demonstration program would be conducted on lands within the Lake Andes-Wagner and Marty II project areas and would also address irrigation and drainage practices in low permeability soils.

The Lake Andes-Wagner/Marty II demonstration program would not only focus on the development of irrigation and drainage best management practices applicable to other areas, but could also contribute to refinement of best management practices for fertilizer application, pesticide use, and other agricultural practices. The type of information to be gained in this demonstration could be most important to States in which intensive agricultural practices are being examined for improved water management on soils overlying glacial till and other low permeability soils. In order to gain that knowledge, best management practices will be demonstrated in actual on-the-ground situations under controlled conditions. The development and transfer of such best management practices important to Reclamation's program for sound water resources management.

What is learned from the demonstration program may differ from conventional irrigation and drainage practices which frequently result in over-irrigation and excessive drainage. New management strategies may demonstrate considerable

conservation of water and the energy to pump and apply that water. Management practices and return flow treatment processes developed in this study could have important application to some areas where problems with return flow water quality already exist. Development of methods for removal of contaminants from return flows from areas of low-permeability soils would be important in the cleanup and management of similar project areas with existing problems, and the prevention of contamination where no problems currently exist. The research will complement that for higher-permeability soils carried out in the San Joaquin Valley in California.

Reclamation has prepared a detailed Plan of Study for the demonstration program. This was a cooperative effort involving the input of numerous groups and agencies. Specifically, input and/or review was received from the U.S. Fish and Wildlife Service; the Environmental Protection Agency; the Bureau of Indian Affairs; the USGS; the South Dakota Departments of Water and Natural Resources and Game, Fish and Parks; the Lake Andes-Wagner Water Systems, Inc., and the Yankton Sioux Tribe.

Conducting the demonstration program in the State of South Dakota would be of direct benefit and applicability to its activities and programs. However, there would also be potential benefits to the programs of the other Federal agencies and other states.

The information gained from the demonstration program would be useful to the Fish and Wildlife Service in carrying out its nationwide contaminants program. Furthermore, the enhancement of waterfowl habitat and refuge management capabilities would be provided as part of the wetland/wildlife enhancement feature of the demonstration program.

The Environmental Protection Agency is responsible for working with the States to develop management practices which curtail or minimize nonpoint source pollution, and to enforce appropriate water quality standards. At present, best management practices relative to irrigation and drainage have not been developed to deal with various agriculture-related nonpoint source pollution problems. In order to develop these best management practices, the mechanics of salt and trace element movement in different soil types needs to be studied and understood as proposed in the demonstration program.

For those important reasons, Reclamation believes the demonstration program is justified. We can support the demonstration program if the legislation is amended to provide for substantial cost-sharing by project beneficiaries and if the program is implemented by a memorandum of understanding between the various Federal agencies, with these agencies contributing to the cost. We have estimated the cost of the demonstration program to be $30 million over a ten year period, and we recommend that this amount be specifically authorized in Section 8(2)(c). We also object to Section 4(a), which would require use of the alternative benefit evaluation procedure.

Should the Lake Andes-Wagner and Marty II Units receive congressional approval, I would suggest that the conditions recommended by Reclamation during previous testimony before this committee be incorporated into the authorizing legislation. The conditions have been modified to reflect the demonstration program concept. The terms and conditions are as follows:

1. Actual construction would not be authorized to begin until submission to Congress by the Secretary of the Interior of a supplement to the Planning Report/Final

Environmental Statement finding that the project is both economically justified and environmentally feasible contingent on successfully demonstrating methods to prevent nonpoint source pollution as a result of toxic elements in the project soils, and project sponsors enter into a legally-binding agreement containing cost-sharing provisions acceptable to the Secretary;

2. No authorization of new full-service, non-Indian lands as part of the project;

3. Repayment on a straight-line amortization schedule not to exceed 40 years following the development period of any "irrigation assistance" needed from hydropower revenues for the project as well as those costs allocated to irrigation and signed for return by the water users; and

4. The legislation retain the provision that any crop program payments be based on pre-project, dry-land yields.

I would reiterate a point that was made in previous testimony that the Administration is committed to completing those Reclamation projects that are substantially underway. Should the Lake Andes-Wagner/Marty II Project be authorized, it would be the newest project, and therefore, would necessarily be placed at the end of the priority list for construction appropriations.

In order to preserve the discretion of the Secretary of the Interior and the President as to whether to request appropriations, and to when such a request is timely, we oppose the inclusion of language in Section 7(c) of this bill. That language requires the Secretary to request that the President include funds in the

annual budget permitting completion of construction.

Section 2(f) of S. 2710 includes provisions for rural water supply development in conjunction with the Lake Andes-Wagner/Marty II project. It provides broad authorization to construct such facilities without any specific project or benefitting entity being identified. We cannot support this language and recommend it be removed from the bill.

Reclamation supports Section 2(g), Mitigation of Fish and Wildlife.

We defer to the Department of Labor with regard to Section 5 concerning Indian employment.

As I have already indicated, Reclamation is supportive of Section 3 which deals in some length with authorization of a Demonstration Program. I would offer at this time, however, that regarding Section 3(f), we believe the time frame provided in Section 3(f)(2)(C) is not adequate to prepare the required concluding report and recommendation. We suggest the language be changed to allow 1 full year following completion of field activities to allow for laboratory analysis and adequate review by the involved parties.

Regarding the remaining portions of this bill, we would once again point out the cost-sharing provisions contained in Section 7. Previous testimony from Reclamation expressed nonsupport for the project's cost-sharing plan. We suggest S. 2710 be modified to provide the Secretary the authority to negotiate a cost-sharing agreement more favorable to the United States, including provisions for upfront cost-sharing.

Without such modification, Reclamation cannot support the sponsor's cost-sharing plan.

That concludes my testimony. I would be pleased to answer any questions Members of the Committee may have at this time.

Senator BRADLEY. Thank you very much, Mr. Underwood, for your testimony. It lays out a number of very important issues. Dr. Fischer?

STATEMENT OF DR. JOHN N. FISCHER, ASSOCIATE CHIEF, HYDROLOGIST, U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY DR. JAMES McNEAL, DEPUTY CHIEF, ENVIRONMENTAL GEOCHEMISTRY BRANCH

Dr. FISCHER. Thank you, Senator Bradley, Mr. Chairman, Senator Burns. I am Jack Fischer, Associate Chief Hydrologist of the U.S. Geological Survey. I am accompanied today by Dr. James McNeal, the Deputy Chief of our Branch of Environmental Geochemistry. We are pleased to have the opportunity to testify before the Committee today on S. 2710, a bill to authorize construction, operation and maintenance of the Lake Andes-Wagner and Marty II units, and to conduct a demonstration program at that site.

Mr. Chairman, the USGS has worked with the Bureau of Reclamation and other agencies in preparing the plan of study for the demonstration program at Lake Andes Wagner and Marty II units. If a decision is made to implement the demonstration program, and if requested and funded by the bureau, we will continue to assist by providing hydrologic, geologic and geochemical information in the development of the study protocols for the demonstration and in the conduct of appropriate elements of the demonstration itself.

We believe that a carefully conducted demonstration program could lead to additional physical and geochemical information for the Nation on the difficult and sensitive issues related to irrigation of low permeability soils such as glacial till and environmentally safe management of irrigation projects on seleniferous soils.

The findings from such a demonstration could be applied to other areas of seleniferous soils such as Angostura and Bell Fourche, South Dakota, and to other semi-arid glaciated areas in the northern Great Plains.

That concludes my statement, Mr. Chairman. I will be happy to answer any questions.

[The prepared statement of Dr. Fischer follows:]

TESTIMONY OF DR. JOHN N. FISCHER
ASSOCIATE CHIEF HYDROLOGIST, U.S. GEOLOGICAL SURVEY
BEFORE THE
SUBCOMMITTEE ON WATER AND POWER
OF THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
U.S. SENATE
ON
S. 2710, A BILL TO AUTHORIZE THE LAKE ANDES-WAGNER AND MARTY II UNITS OF THE PICK-SLOAN MISSOURI RIVER BASIN PROGRAM, SOUTH DAKOTA

June 19, 1990

Mr. Chairman, members of the Committee, I am pleased to appear before you today to discuss the views of the U.S. Geological Survey on the agricultural drainage demonstration program proposed by S. 2710 for the Lake Andes-Wagner and Marty II Units. I am accompanied by Dr. James McNeal who is Deputy Chief for Geochemistry and Environmental Activities, in our Geologic Division. I would like to briefly describe (1) the activities of the U.S. Geological Survey in the Department of the Interior's Irrigation Drainage Program, (2) the data collected by the Survey for the Bureau of Reclamation in the vicinity of the proposed project, and then, (3) comment on the proposed Lake Andes-Wagner/ Marty II Demonstration Program Plan of Study.

In response to concerns expressed by Congress over contamination at the Kesterson National Wildlife Refuge in California, the U.S. Department of the Interior undertook a program in 1985 to identify the nature and extent of irrigation-induced water-quality problems that might exist in other areas of the western United States. Results thus far from this program provide several general conclusions that may be of interest to this Committee: (1) water-quality issues associated with irrigation drainage are not uncommon in the western United States; (2) elevated concentrations of potentially toxic trace

elements have been detected in several study areas; (3) alkaline, oxidized soils that contain elevated concentrations of trace elements, such as selenium or arsenic, in semiarid environments commonly are associated with potential problem areas; (4) the potentially toxic elements found most often at elevated concentrations in water, bottom sediment, and plants and animals in the study areas are selenium, boron, arsenic, and mercury; (5) the highest concentrations of these elements commonly occur in closed basins; and (6) the occurrence of source rocks with elevated levels of these potentially toxic elements commonly are associated with problem areas. Many of these conditions are found in the Lake Andes-Wagner and Marty II Units project areas.

Over the past 5 years or so, the U.S. Geological Survey has assisted the Bureau of Reclamation by collecting and analyzing the chemical content of soils, streambed material, and water samples from the project area. The drinking water standard for selenium is 10 micrograms per liter and the EPA (Environmental Protection Agency) fresh-water acute criteria for fish and wildlife is 20 micrograms per liter (1-hour average). Dissolved selenium concentrations in surface water from four tributaries to Lake Andes ranged from 5 to 21 micrograms per liter. Selenium concentrations in Choteau Creek, a tributary to the Missouri River, ranged from less than 1 to 62 micrograms per liter. The selenium concentrations of the soils developed on glacial till in the area range from 100 to 3,100 ppb (parts per billion) and are spatially variable. The concentration of selenium in glacial till sediments from selected soil test holes ranges from 200 to 4,200 ppb, with up to 80 to 100 percent of the selenium occurring in readily soluble form in some soil samples with the highest concentrations of selenium. Water samples from test holes

ranged from 1 to 6,200 micrograms per liter. On the basis of these and other data, we concur with the Bureau of Reclamation that selenium is present over the entire area of both projects in concentrations that are very likely to cause additional water quality problems if the irrigation projects become operational.

Now, I would like to comment on the Lake Andes-Wagner and Marty II Demonstration Program Plan of Study. The U.S. Geological Survey supports the intent of Bureau of Reclamation efforts to better understand the mobilization and transport of selenium and other contaminants by identifying and field testing a number of irrigation management practices. A demonstration project could provide information on irrigation processes that may be applicable to other areas of the country. We understand that the Bureau of Reclamation has used information gained through the Irrigation Drainage Program to design the study. Although the soil materials in southeastern South Dakota differ from those at other sites in the current Irrigation Drainage Program, these results provide insight into (1) effects of irrigation water on the mobilization of selenium into the environment; (2) impact of salt buildup in soils as a result of irrigation; and (3) the potential of adverse impact on fish and wildlife. The symposium proposed in the demonstration plan will provide an important opportunity for the Bureau to receive technical comments and suggestions on the technical design of the demonstration program. We believe that there may be environmental risks associated even with just a demonstration program in this area, and that all sources of available information on existing irrigation-drainage water quality issues, and particularly on selenium, should be carefully incorporated into the program design.

To design an environmentally safe and scientifically useful demonstration program, it will be necessary, prior to program inception, to develop a thorough understanding of the hydrogeology of the area, the ground-water flow system, and the 3-dimensional distribution and characterization of the chemicals and materials in the soils and aquifers. In addition, a well-planned monitoring system will be essential to quantifying the impacts of the different irrigation practices. Models of the flow system, with particular attention to the permeability of the glacial till, should be developed and tested under pre-demonstration conditions and used to predict the effects of various irrigation techniques. We understand that these components will be part of the planned protocol for the demonstration program.

In summary, Mr. Chairman, we are concerned about the potential environmental effects of a full scale irrigation project in the Lake Andes-Wagner and Marty II Units based upon the observed levels of selenium in the soils, ground water, and surface water of the area. We support the concept of a very carefully implemented demonstration program and believe that, if the proposed experiment is founded on a sound scientific understanding of the geochemical and hydrogeologic environment of the area, that useful information may be forthcoming on the effects of different irrigation management practices on the quantity and quality of irrigation return flows. The understanding of irrigation processes and the various interactions with potential natural geologic materials and sources of elements, and with ground-water systems should be an important contribution applicable to irrigation management decisions in other locations. The demonstration program could provide an

opportunity for a number of different Federal and State agencies with interests in agriculture and irrigation to exchange research information and expertise and to coordinate their respective activities.

This concludes my testimony Mr. Chairman. I shall be happy to answer any questions.

Senator BRADLEY. Thank you very much, Mr. Fischer. I do not want to go out of order, but you said other places in the upper Great Plains. Give me three examples.

Dr. FISCHER. The glaciated areas would cover both Dakotas, Montana and Nebraska. Regarding the seleniferous soils, pretty much the southern part of South Dakota would be affected by that, all the way across the State, Mr. Bradley.

Senator BRADLEY. Mr. Jacobsen.

STATEMENT OF ROBERT JACOBSEN, ASSISTANT REGIONAL DIRECTOR, FISH AND WILDLIFE ENHANCEMENT, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY GARY JACKSON, CONTAMINANTS DIVISION

Mr. JACOBSEN. Good morning, Mr. Chairman. I am Robert Jacobsen, Assistant Regional Director for Fish and Wildlife Enhancement, U.S. Fish and Wildlife Service, Denver. I appreciate the opportunity to be here today to testify on S. 2710 to authorize construction of the Lake Andes-Wagner and Marty II units of the South Dakota Pumping Division Pick-Sloan Missouri Basin program.

With me today is Gary Jackson from our Contaminants Division here in Washington, DC, who will be available to answer any technical questions you might have.

Data from the proposed demonstration could be important in understanding the feasibility of preventing impacts from the selenium-contaminated drain water that could occur if the full irrigation project were constructed and irrigated using existing information and technology.

Results from the demonstration program could lead to making wise decisions about the scope and effects of any future irrigation projects in the Lake Andes-Marty II area.

Irrigation drainage from these proposed projects could impact fish and wildlife resources in receiving waters, including Choteau Creek, the Missouri River and Lake Andes, where the Service operates the Lake Andes National Wildlife Refuge. These waters currently provide habitat for a variety of fish and wildlife species under our Federal trustee responsibilities, notably migratory birds, endangered species and wildlife on refuge lands.

Section 3 of S. 2710 outlines a demonstration program to determine the quantity and quality of drainage from different irrigation and agriculture practices applied to different soils and land forms in the Lake Andes-Wagner area. Results from this program could have application both within and outside the immediate area.

Such information is particularly important in determining the methods for treating irrigation waste waters to remove or reduce trace element concentrations, particularly selenium. Measures to address trace elements are needed in many areas recently identified in Western States where contaminants in irrigation drainage pose a threat to surface water quality and fish and wildlife resources. Measures may include introduction of best management practices or retirement of land.

The Service has provided considerable technical assistance from our regional office in Denver as well as our enhancement field

office in Pierre, South Dakota, in developing the plan of study for the demonstration program, and we propose to continue our involvement if the program is authorized and funded. The Service has a representative on each of the three groups organized by the Bureau of Reclamation—Working Group, the Technical Review Committee and Management Committee—to develop and review the current plan of study.

Service inputs to the plan of studies have included technical information on expertise on irrigation drain water contaminants and their effects on fish and wildlife; information on habitats and species most susceptible to drain water impacts; wetland information; recommendations on study design for environmental sampling and analysis, including quality assurance and control; and recommendations to make a plan of study consistent with methods in experimental design used in the irrigation water quality program of the Department of the Interior.

In addition, the Service has developed and drafted the wetland wildlife enhancement section for the plan of study.

The proposed demonstration program would be the only controlled experimental effort designed on an operational scale to determine the connection between water applied to different land forms and crops and the resulting quality of irrigation drainage. The study could be important to understanding ways to reduce irrigation drainage as a source of contaminants. We would recommend that section 3 be amended to specify the irrigated acreage involved in the demonstration program and the duration of the program.

The Service does not believe that irrigation drainage which complies with existing water quality standards is sufficient to protect fish and wildlife resources. Water quality standards sometimes overlook the potential for bio concentration and bio accumulation of low-level water-borne contaminants to levels detrimental to fish and wildlife. Contaminant limits needed to protect fish and wildlife are often lower than those needed to protect human health.

This problem highlights the potential importance of the demonstration program in developing practical methods to reduce the trace element selenium content of irrigation drain water. The program could also be useful in the development of on-farm irrigation in other agricultural practices that minimize the volume of irrigation drainage. Based on results of the demonstration program, fish and wildlife risk assessments should be used to determine if hazards to fish and wildlife resources and the environment could develop from the full-scale project.

Finally, we would hope that the bill adequately addresses the documented selenium problems in soils and ground water associated with the Lake Andes-Wagner and Marty II areas. Soils to be irrigated by the Lake Andes-Wagner Unit contain naturally high concentrations of selenium that could be leached into shallow ground water and carried to local surface waters by irrigation drainage.

It is our view that at present adequate technology does not exist to construct and operate the full-scale Lake Andes-Wagner and Marty II Units without risking significant contamination of fish and wildlife resources for which the Service is responsible. However, the Service stands ready to assist the Bureau of Reclamation

and other interested parties in examining the potential for such technology through a well-planned, efficiently executed and realistically interpreted demonstration program.

Mr. Chairman, thank you again for the opportunity to testify. We will be pleased to answer any questions you may have.

Senator BRADLEY. Thank you very much. Mr. Dodson.

STATEMENT OF MAX H. DODSON, DIRECTOR, WATER MANAGEMENT DIVISION, REGION VIII, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. DODSON. I am Max Dodson, Director of the Water Management Division for U.S. EPA in Region VIII, Denver, Colorado. Thank you for this opportunity for EPA to submit testimony on the U.S. Bureau of Reclamation's Lake Andes-Wagner Demonstration Project.

The EPA Region VIII staff has participated in a review of the plan of study for the demonstration project through the Technical Advisory Committee and the Management Committee. EPA has been involved with the project through its review of environmental documents prior to 1985. The original EPA comments focused on water quality impacts, particularly selenium and loss of wetlands. At this time, EPA feels that this demonstration project will provide a mechanism to address the agency's major concerns and should provide valuable information that could be used to minimize impacts from irrigating seleniferous and glacial till soils.

My testimony stresses five points: first, EPA does not support the full-scale project at this time. We feel that there is insufficient information available to properly evaluate possible impacts from the proposed level of irrigation. The full-scale project should not be——

Senator BRADLEY. Would you repeat that? I did not hear.

Mr. DODSON. We feel that there is insufficient information available to properly evaluate possible impacts from the proposed level of irrigation for the full project. The full-scale project should not be given consideration until it can be demonstrated that this type of soil can be safely irrigated. Again, we think that is the purpose of this demonstration project.

Number two, the focus of the present EPA involvement is to ensure the development of an environmentally responsible demonstration project only. EPA has not made a judgment on costs of the demonstration project or alternatives.

Number three, we recognize the State of South Dakota's concerns and desire to develop effective best management practices that will be utilized on these soils. We also recognize the need to develop a clear understanding of the behavior of selenium under these conditions. Studies are underway throughout the western United States to learn more about the chemical, bio-interactive, bio-cumulative and mobility characteristics of selenium. This demonstration project could contribute to our knowledge of the selenium problem and result in cost-effective best management practices.

Number four, the literature search and proposed workshop will enhance the compilation of information and allow scientists the opportunity to strengthen the network of those working with similar

problems. This will also assist the bureau in developing proper protocols for the demonstration project.

Number five, it is important for the bureau to have their procedures and findings undergo technical review and comment. Without defining procedures, the demonstration project will not provide the information that EPA and others will need to evaluate the possible impacts of the full-scale project, and we will stand ready to assist the bureau in that endeavor.

In summary, the water quality impacts and wetland losses for the full-scale project remain a concern which have not been addressed by the bureau. The research provided by the demonstration project could provide answers to some of EPA's concerns, and we are hopeful that it will provide information to develop management practices that are transferable to similar sites around the country. EPA sees this demonstration project as an essential first step before a decision on the full-scale project is made.

[The prepared statement of Mr. Dodson follows:]

Testimony Submitted By
Max H. Dodson
Water Management Division, Director, Region VIII
U.S. Environmental Protection Agency
Before the
Subcommittee on Water and Power
Committee on Energy and Natural Resources
U.S. Senate

June 19, 1990

Thank you for this opportunity for EPA to submit testimony on the U.S. Bureau of Reclamation's Lake Andes - Wagner Demonstration Project.

The EPA Region VIII staff has participated in the review of the Plan of Study for the Demonstration Project, through the technical advisory committee and the management committee. EPA has been involved with the project through its review of environmental documents prior to 1985. The original EPA comments focused on water quality impacts, loss of wetlands and the impact of heavy metals, especially selenium.

At this time, EPA feels that this demonstration project will provide a mechanism to address the original concerns and should provide valuable information that could be used to minimize impacts from irrigating selenious and glacial till soils.

EPA does not support the full scale project at this time. We feel that there is insufficient information available to properly evaluate possible impacts from the proposed level of irrigation. The full-scale project should not be given consideration until it can be demonstrated that this type of soil can be safely irrigated.

The focus of the present EPA effort is to ensure the development of an environmentally responsible demonstration project

only. EPA has not made a judgement on costs of the demonstration project or an alternative.

We recognize the State of South Dakota's concerns and desire to develop effective Best Management Practices (BMPs) that will be utilized on these soils. We also recognize the need to develop a clear understanding of the behavior of selenium under these conditions. Studies are under way throughout the Western United States to learn more about the chemical, bio-interactive, bio-accumulative and mobility characteristics of selenium. This demonstration project could contribute to our knowledge of the selenium problem and result in cost effective BMPs.

The literature search and proposed workshop will enhance the compilation of information and allow scientists the opportunity to strengthen the network of those working with similar problems. This will also assist the Bureau on developing proper protocols for the Lake Andes demonstration project.

It is important for the Bureau to have their procedures and findings undergo technical review and comments. Without defined procedures, the demonstration project will not provide the information the EPA and others will need to evaluate the possible impacts of the full-scale project.

The environmental analysis done to support the demonstration plan of study recognizes that there is a possibility of mobilization and the build up of selenium and salts in the soils. The project plans to halt irrigation if a problem with the return flows does develop, minimizing possible environmental impacts.

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In summary, the water quality impacts and wetland losses for the full scale project remain concerns which have not yet been addressed by the Bureau. The research provided by the demonstration project could provide answers to some of EPA's concerns and information to develop management practices that are transferable to similar sites around the country. EPA sees this demonstration project as an essential first step before a decision on the full scale project.

Senator BRADLEY. Thank you very much, Mr. Dodson, for your testimony. Let me begin with a few questions for Mr. Underwood, but the other panel members should feel free to offer their opinions if they think that they have amplifying insight, shall we say.

Mr. Underwood, if you were going to sit down today and try to scope out a plan for addressing selenium contamination in various reclamation projects, would this demonstration project be included?

Mr. UNDERWOOD. Yes, because of its occurrence, without a doubt.

Senator BRADLEY. Where would be other places that this kind of—other projects where this kind of information would be helpful?

Mr. UNDERWOOD. Obviously, you have California, the San Joaquin Valley drainage. I view this demonstration project as a best management practice technique; it is the same thing that is going on with the San Joaquin drainage. Drainage control alternatives are being considered there. I consider that to be a similar type of best management practice.

You also have the Stillwater area. There have been other irrigation drainage studies done, and there are a number of them—four of them in particular—that are getting substantial further work. These are the Salton Sea area, the Middle Green River area, the Kendrick project, and the Stillwater area. So those come right to mind.

Obviously, as we look in more detail, you very well may find—there are other areas that really have not had any irrigation, and you are finding trace elements in the soils, and you are anticipating a problem. This is trying to be out ahead and trying to develop the technology to deal with it, as opposed to walking away from problems.

Senator BRADLEY. So you see wide applicability for the information that you would get from the study?

Mr. UNDERWOOD. Especially the movement of trace elements through soils, whether it was selenium or other trace elements such as arsenic, boron, et cetera. There are different types of conditions and interactions that go on within different soils, and we need to understand these—we have a very limited knowledge—and that is what this demonstration project would provide. It would also provide for the development of best management practices.

Senator BRADLEY. I take that as generally agreed by other people on the panel. Mr. Fischer?

Dr. FISCHER. Yes, sir.

Senator BRADLEY. Mr. Jacobsen?

Mr. JACOBSEN. Yes, sir.

Senator BRADLEY. Mr. Dodson?

Mr. DODSON. Yes, sir.

Senator BRADLEY. Now, the demonstration project will take how long?

Mr. UNDERWOOD. It will take 9 years, totally. That is the total involvement in terms of developing the program and the construction of the facilities. But you are actually looking at only 5 years of actual irrigation, remembering that we will have areas of 640 acres, dividing those into 80-acre plots with various types of cropping patterns and irrigation applications.

In addition to that, we are also looking at two additional sites which would deal with drainage requirements. There is some

debate as to what our estimates may be as to what is required for drainage based on what the local farmers have practiced, and I think this will help verify that.

The other part is to study trace element uptake of various types of crops. In other words, with respect to certain types of specialty crops, what is the uptake of trace elements within those crops?

Senator BRADLEY. In other words, how much of the selenium actually gets into what people or animals——

Mr. UNDERWOOD. That is correct. This is where you really have almost a 4,000-acre laboratory to conduct pretty exhaustive research.

Senator BRADLEY. How much will it cost, and who will pay for it?

Mr. UNDERWOOD. We have estimated costs of about $30 million. About $19 million of that would be in construction and about $11 million would be in nonconstruction. As is proposed in the bill, it would be all federally financed. We would be looking for some cost-sharing for this demonstration.

Senator BRADLEY. What would you think would be an appropriate cost-sharing?

Mr. UNDERWOOD. That is difficult. Some of the other Federal agencies would be participating. I think even in terms of some in-kind services when you are looking at local cost-sharing. Even in the study program conducted so far we have had local entities and universities, and State agencies already providing in-kind services. When you start accounting for dollars, sometimes we forget that they also get paid a salary and that should be accounted for when we are carrying out the program.

Senator BRADLEY. This is your shot, now. You have advocated cost-sharing.

Mr. UNDERWOOD. That is something that we would like to work out.

Senator BRADLEY. So we can expect to hear from you on that?

Mr. UNDERWOOD. Yes.

[The information follows:]

The research results from the demonstration program would have broad, multi-state application. Regarding cost sharing, the Administration has not set a fixed percentage for non-Federal cost sharing, however, it is appropriate that a significant portion of the cost be borne by the Federal Government. South Dakota entities have contributed technical expertise and assistance toward formulation of the Plan of Study. We would anticipate, in fact expect, that the various non-Federal experts and individuals would continue to contribute substantial in-kind services relative to the design and conduct of the research program.

Senator BRADLEY. Do you need new authorization to conduct drainage research program?

Mr. UNDERWOOD. Legal counsel has not advised me on this. However, assuming that we would get this authorization, that——

Senator BRADLEY. You could construe it to fit into your general investigative soil study authorities that are already there.

Mr. UNDERWOOD. I think that you are correct in that analysis.

Senator BRADLEY. Let me ask you, in the bill as it is now written, there are a whole lot of steps that you have to go through before the construction actually takes place. Now, pulling back from—I want you to give me your sense of what the bill says, but as I heard the testimony from a number of you, you said you felt that

the construction phase should not go through, or should not be authorized, did I hear you say, until there was an answer on the selenium? Is that your position, Mr. Dodson?

Mr. DODSON. Yes, it is.

Senator BRADLEY. That is EPA's position?

Mr. DODSON. Yes.

Senator BRADLEY. Mr. Underwood?

Mr. UNDERWOOD. For the full-scale project, yes.

Senator BRADLEY. Mr. Jacobsen?

Mr. JACOBSEN. Yes.

Senator BRADLEY. Mr. Fischer?

Dr. FISCHER. Yes, sir.

Senator BRADLEY. So that is your view toward that provision of the bill. Now, help us try to understand what the bill says in another area. If you were to be operating under the bill today, what does this mean to you, Mr. Underwood: "The Secretary makes a finding that the project could be constructed, operated and maintained so as to comply with applicable water quality standards." What are the applicable standards?

Mr. UNDERWOOD. These would be in terms of the impacts on the surface and ground waters. The water quality standards are set by the State and EPA for that particular area.

Senator BRADLEY. Will it only apply to selenium?

Mr. UNDERWOOD. No. It would be for all constituents. One of the things that is envisioned for the project is the construction of a ring dike and enclosed drainage system to safeguard against contamination, if in fact, it does occur within the project.

Senator BRADLEY. When you say, finding that will comply with applicable water quality standards, that is applicable water quality standards at the time the project was completed?

Mr. UNDERWOOD. The standards generally.

Senator BRADLEY. If we look at anything, we see standards have gotten tighter and tighter, so a project that meets last decade's standards—which is the applicable standard? Mr. Dodson?

Mr. DODSON. Let me attempt, Mr. Chairman, to answer the question in regards to drinking water, for example. The current drinking water standard is 10 parts per billion for selenium, but there is a proposal to modify that to 50 parts per billion, so in this particular parameter or maximum contaminant level, there is a move to allow relief of the ten, and that was based on a study in China that would indicate that the ten would be too restrictive.

In terms of the surface water quality standards, they are adopted by reference by the State of South Dakota. The State of South Dakota is the primary agency responsible for establishing standards, and we approve them. Right now, again they have adopted by reference selenium standards that apply to all surface waters. The State also has a program to ultimately regulate ground water as well. They are in the development phases of that program.

Senator BRADLEY. So the possibility is the standard might not be tougher; it might be looser. But the point is that the standard that the bill refers to from your standpoint is the water quality standard that exists at the end of the study. So you might find that selenium is looser, but some other trace element is much tighter. Is that correct?

Mr. UNDERWOOD. Correct.

Senator BRADLEY. In your written statement, Mr. Underwood, you oppose Section 4(a) which requires the use of reclamation's alternative benefit/cost methodology. I do not want to get you into the arcane here, but do you oppose it per se or do you simply object to it being required to use it?

Mr. UNDERWOOD. From being required.

Senator BRADLEY. Okay. All right. Let me ask you now, the bill includes authorization for use of project facilities for rural water supply. Do you know that element of the bill? Did the Bureau consider this use in the environmental documentation or cost/benefit analysis done of the project?

Mr. UNDERWOOD. When we did the planning report, we did look at rural water supply and determined at that time that there was a rural water supply system already presently serving the area, and that it was not necessary to be included within the project.

Senator BRADLEY. So that part of the project is, you think, unnecessary?

Mr. UNDERWOOD. Is not necessary, right.

Senator BRADLEY. You know, the Mni Wiconi legislation, which has been referred to a couple of times here, that we passed in October of 1988, directed the Secretary to develop and report to Congress on the mitigation of fish and wildlife losses incurred from a couple of the dams.

Now, what is the status of that plan? Do you know?

Mr. UNDERWOOD. No.

Senator BRADLEY. Mr. Jacobsen, do you know?

Mr. JACOBSEN. No, I do not.

Mr. UNDERWOOD. We could find that out for you, sir.

[The information follows:]

The Department of the Interior, through the Fish and Wildlife Service, was involved in the development of the Corps of Engineers Design Memorandum (M(Gen)-19, December 1987) as referenced in Public Law 100-516, October 24, 1988, Mni Wiconi Rural Water Supply Project, Construction Authorization, which addressed land management/stewardship and mitigation needs for Oahe and Big Bend Reservoirs. The State of South Dakota has initiated a special task force to study Missouri River mitigation needs and the Fish and Wildlife Service has participated in these efforts along with the Corps of Engineers. No formal report or formal submittal of funding and implementation plans have occurred to date. The Department of the Interior will continue to work with the State of South Dakota, other Federal agencies, and interested parties to develop a formal proposal in the near future.

Senator BRADLEY. Mr. Fischer, do you feel that, as you said, that information on selenium and the demonstration project would have application in other places?

Mr. FISCHER. Yes, sir, I do.

Senator BRADLEY. Will the research conducted under this project be coordinated with other agricultural drainage research being done by the survey?

Mr. FISCHER. Yes, sir. The Bureau has worked closely in development of the study plan with other Federal agencies and with the Department of the Interior in the irrigation and drainage program which we have been conducting over the past several years on western sites that have had trace-element problems.

Senator BRADLEY. Just as a frame of reference, how will the $30 million to be spent on this study compare to the selenium studies and cost in the central valley, the San Joaquin?

Mr. FISCHER. Well, that might be a better question for Mr. Underwood. But——

Senator BRADLEY. You spend it, do you not?

Mr. FISCHER. We do the earth science.

Mr. UNDERWOOD. We pay the bills.

Mr. FISCHER. We do the earth science, Mr. Bradley, which is a small element of the total cost. This project, of course, involves 30 million but includes a lot of pipes and pumps. In the central valley of California, the work that we have done has been limited to explaining water quality.

Senator BRADLEY. As a frame of reference, what would be the comparison, Mr. Underwood?

Mr. UNDERWOOD. I wish I could tell you. I cannot right off.

[The information follows:]

KESTERSON RESERVOIR

The total amount expended for Kesterson Reservoir cleanup through September 1990 will be approximately $18.1 million. Of this amount, $6.5 million was for a contract awarded in July 1988 for the filling of ephemeral pools before the onset of winter precipitation and the rising groundwater, which had brought high levels of selenium to the surface. The additional $11.6 million was for extensive monitoring and continued research into possible methods of removing selenium.

SAN JOAQUIN VALLEY DRAINAGE PROGRAM

The primary purpose of the drainage program is for research because of rising water table and chemical constituents (salinity, boron, etc.) in groundwater. The estimated cost of the program is approximately $50.0 million.

Below are listed some of the program activities for the San Joaquin Valley Drainage Program.

Geologic and hydrologic studies
Fish and wildlife studies
Public health
Drainage water treatment and disposal technology
Onfarm water management and conservation
Information systems and data management
Development and evaluation of alternative solutions
Public involvement and information dissemination

Senator BRADLEY. Okay, maybe you could get that to us. That is just curiosity.

Mr. UNDERWOOD. I think just looking at the cleanup and mitigation costs of what has happened in some of the areas, like with the Kesterson, it justifies the demonstration project.

Senator BRADLEY. So, Mr. Jacobsen, do you think that the Fish and Wildlife Service has an adequate role in this demonstration program?

Mr. JACOBSEN. Yes, I do. We have been closely involved as a full working partner with the Federal agencies, particularly, the Bureau of Reclamation. And our role in the future would involve developing the final details of the Wetland Wildlife Enhancement Program and assisting the Bureau in actually implementing that program. We would be involved in providing technical assistance on the experimental design, providing expertise on development of wetland areas. We would be involved in working with the Bureau

and the USGS in terms of field sampling and analysis of, and interpreting, the data we are collecting relative to selenium impacts, if any

Senator BRADLEY. That is impacts on fish and wildlife, right?

Mr. JACOBSEN. Effects on fish and wildlife, yes, sir.

Senator BRADLEY. So your job is to see if the selenium creeps into the biota, right?

Mr. JACOBSEN. That is correct. Hopefully, in this instance, we would have a design program that would avoid selenium getting into the food chain for fish and wildlife.

Senator BRADLEY. Would you describe what are the mitigation and enhancement measures contemplated for the demonstration program?

Mr. JACOBSEN. Well, in this case, the mitigation measures or enhancement we are talking about is creating a number of many smaller wetland areas which are of high value to migratory birds. Basically, we are looking at development of wetlands. And, in fact, as a result of this program, there would be a wetland gain. The project would not be reducing acres of wetlands. So we are looking at a wetland gain as a part of this project.

Senator BRADLEY. But is there any way that you can assure that, say, fish and wildlife will not be exposed to selenium contamination during the demonstration program?

Mr. JACOBSEN. I am not sure I can answer that totally. But I do know that working with the Bureau we would be designing a program which would certainly reduce or avoid that becoming a problem. I think there is adequate involvement for us to be monitoring it very carefully, so if it does look like there is a problem, we will be on top of it, rather than responding to issues where we already have the problem.

Mr. UNDERWOOD. Mr. Chairman, the drainage component of the demonstration, is designed to minimize the amount of drainage, so that would reduce the likelihood of having exposure to surface water.

Senator BRADLEY. Waterfowl might fly into a pool of selenium-contaminated water, right? That is not advisable, right?

Mr. UNDERWOOD. Correct.

Senator BRADLEY Mr. Dodson, do you feel that EPA has an adequate role in this demonstration program?

Mr. DODSON. Yes, sir. And we have participated, again, with the three committees that have been formed up. And we think the Bureau has been very receptive to our comments and very receptive to our involvement. In fact, they actively solicited our involvement early on, which is a pattern that we would like to see followed on other projects.

Mr. UNDERWOOD. Mr. Chairman, that is one of the first things that we did, like I think I mentioned to you in my testimony——

Senator BRADLEY. Well, that is good news, Mr. Underwood.

Mr. UNDERWOOD. Pardon me?

Senator BRADLEY. That is good news.

Mr. UNDERWOOD. I know. It is good to hear those once in a while.

In this particular case, when we were deciding whether to do a demonstration program, one of the prerequisites I identified was

that we would have to have unanimous consent of all potentially involved agencies before we went forward.

Senator BRADLEY. Okay. Mr. Dodson, should Congress want to hear from both Interior and EPA on the question of whether the irrigation project can be operated in compliance with applicable water quality standards?

Mr. DODSON. Yes. I would agree with that. One other organization that, again, plays the predominant role is the State of South Dakota. They do establish the water quality standards. EPA is in the position of approving or disapproving those standards.

Senator BRADLEY. Well, should we ask for findings from both agencies?

Mr. DODSON. I would recommend to ask for findings from all three agencies: the State of South Dakota, the Department of Water and Natural Resources, the Bureau and EPA.

Senator BRADLEY. Okay. Let me thank all four of you very much for your testimony. I appreciate it; it has been very helpful. And you will get back to me on some of the numbers that did not automatically come to your mind.

Thank you very much.

Our next panel consists of Leo Holzbauer, Chairman of the Lake Andes Wagner Water Systems, Incorporated; Stephen Cournoyer, Chairman of the Yankton Sioux Tribe; Scott Parsley, Staff Assistant, East River Electric Power Cooperative, Madison, South Dakota.

Welcome to the subcommittee. Welcome back to the subcommittee for a few of you. We are pleased to have you here, and we would welcome your testimony. And I hope that you would follow the example that has been set by making your testimony itself, you know, as brief as possible, five minutes or so, and then we can get to questions.

Let us begin with Mr. Holzbauer.

STATEMENT OF LEO HOLZBAUER, CHAIRMAN, LAKE ANDES-WAGNER WATER SYSTEMS, INC.

Mr. HOLZBAUER. Thank you, Mr. Chairman, and members of the Committee.

My name is Leo Holzbauer, and I am the chairman of the Lake Andes-Wagner irrigation project. And with me I have a number of resolutions that I want presented for the record, as the current record, and they are from organizations and institutions and the cities, the towns, the communities within our area showing their support for the need for the Lake Andes-Wagner irrigation program and the project and the research program.

And, Mr. Chairman, my name is Leo Holzbauer, and I am the chairman of the Lake Andes-Wagner Irrigation Systems, Incorporated, and I want to thank you for taking this time to let us testify at this hearing. We are here today to express our support for the Lake Andes-Wagner/Marty II irrigation units and the demonstration program. And I am concerned about the needs to stabilize our family income and to have more assurance that we can meet our family needs and slow down that out migration of our children to the larger cities, where that is creating more a problem in itself.

We are a farming community, totally dependent upon agriculture. For too many years the area had been hit with severe droughts during the critical growing season of our crops, and drought has hit again in the last two years. And we are looking at another drought this year. And having the ability to carry out timely irrigation, we will be more assured of the production of our crops, so we can maintain our livestock herds and, even more important, attract new agricultural processing industries to our area.

Stabilizing the livestock production and the development of agricultural processing will be—provide a stronger economic base for our whole area.

We have some private irrigation from ground water in our area right now. But due to the both the quality and quantity of that water, it is very limited. Some of the existing irrigation in our area has been operating successfully for over 30 years. And we feel very confident that we can irrigate glacial till soils without having an adverse impact on the environment with our personal and practical experience for the past 30 years.

But there is a disagreement among some of the drainage experts about subsurface draining requirements of glacial till soils. And, therefore, they cannot fully support that portion of our projects now. But the project sponsors, the Lake Andes-Wagner Water Systems and the Yankton Sioux Tribe, were anxiously willing to work together with those Federal and State technical agencies and organizations to fully fulfill the plan of study, which is this plan, and the demonstration program that was formulated by the Bureau of Reclamation in cooperation with the Bureau.

And the program will give—will be given to Congress, the reports from this program will be given to Congress annually and upon completion of the demonstration program. And only with a favorable report would the Lake Andes-Wagner/Marty II units be eligible for the appropriation to move it forward at the end of the research program. That is a very heavy point.

I want to emphasize that we fully recognize the changing nature of our agriculture industry, and we must adapt to such changes in order to survive. We have no intention of irrigating surplus "crops" from fence row to fence row. We want to diversify and also have alternative crops, such as potatoes, sweet corn, edible beans, sunflowers, soybeans and the like. We have grown a number of these specialty crops in our area and have proven that we can produce them.

Our farmers are not and do not have to change their farming practices or all their farming equipment for these crops, therefore, not incurring large expenses to produce those crops. Our biggest problem is that there are no processing plants in our area. They are all 350 to 400 miles away. And it is just too far to haul these vital crops, the needed crops, to those plants.

Last year we planted potatoes in our area, and I myself have planted 130 acres of potatoes. The production was very good. But we had to haul them to Minneapolis, Minnesota, which is 365 miles away in order to deliver them to the processing plants. The processing people want to come to our area with their plants, and they have proven their great interest by helping us start in the potato industry.

They came out and showed us and told us how things should be done. And most important, last year, showing their interest, completely on their own, they handled the total expense of hauling our raw crop product to their plants. They want to know what we produce, and they liked what they have seen. And they need and they want our area for production, but they need a stable supply—and this is the point—a stable supply of production. And it cannot depend on just rainfall, because rainfall is not dependable.

They, if they ever come to build them processing plants in our area, and know they can keep them plants open year in and year out, with those processing plants for potatoes, sweet corn, alfalfa and the oil seed crops, we can look at all the opportunities and jobs that will come to that area and our people made possible by irrigation—with timely irrigation. And that is very important, very important is the timeliness of our irrigation and the water application.

We can move forward with these vital ventures and being assured that our livestock feed supply, we can be confident that meet the challenges before us and prove and provide stable benefits to all concerned.

Mr. Chairman, I am a farmer myself. And I want to emphasize that the members of the proposed Lake Andes-Wagner/Marty II units are all small family farmers and are willing to work hard to meet the challenges of the future. We are not farmers and ranchers just because it is something to do, but because we want to help meet the needs of America and the worldwide consumer, because we believe in our rural way of life.

We plant crops because we want to market and to harvest them. Oftentimes, however, we cannot harvest a profitable yield from our plantings because we are hit by those frequent periods of drought. When those droughts occur, we all suffer tremendously, with our family, our communities, and we add to the Nation's problem. Droughts also have a devastating impact on our wildlife that we treasure so much in our area.

We have wildlife refuges within our project areas, such as Lake Andes, Owens Bay and the Red Lake refuge. Right now Red Lake is dried up. The fish have died. The natural birds, the native birds, and the pheasants and the deer are trying to find other sources of water to drink.

The migratory birds will not have this area to feed in or rest in on their flights again this fall and next spring. The Lake Andes-Wagner/Marty II units have in their planning reports—and they are costly reports; they take time and money for preparation of those—the ability to enhance the wetlands and the wildlife habitat in our project.

The Lake Andes-Wagner and Marty II sponsors have always worked together as a team with congressional people, the Bureau of Reclamation, the Indian Affairs, the Environmental Protection Agency, the Fish and Wildlife, the Yankton Sioux Tribe and all agencies with interest and concerns of the project to their best alternative methods of solving the problems.

In conclusion, Mr. Chairman, there is little value in planting a crop, if we cannot harvest it. Likewise, there is little value in planning and designing an environmentally satisfying and economically

solid project, if we cannot build it. We hope that you will help us in our attempt to build the Lake Andes-Wagner/Marty II projects upon a favorable report from the demonstration program, as we can plant and harvest our crops.

We want to become more diversified with alternate crops and help save and maintain the greater share of our national wildlife. By meeting those challenges we have before us, we can all work together to better and build a future for our children. After more than 20 years of costly plans and studies, we need this authorization of the irrigation units now in order to give the much-needed assurance to our local people that the farmers and landowners can plan for the future and be more willing to participate in that demonstration program.

Further, it is important for the authorization of the irrigation units now, so that we can maintain in the processing industries interests until the results of the demonstration program is complete. We have no new grasslands in our project that will be brought into the project. And our cost-sharing of the study, they are kind of—if they are talking about cost-sharing of the study plan, they are kind of asking us to help cost-share a national interest for—and then we just might get it or we might not, you see, without that authorization.

We have offered the Wildlife Federation people to buy their tickets and everything to come out to look at our project, so they knew and they know what we have out there, how we benefit the wildlife people and that agency. But they just did not have the time to come out as of yet.

So, once again, I want to thank you for your time, and we sure appreciate your understanding and commitments to build a better way of life for us all.

Thank you.

Senator BRADLEY. Thank you very much.

Mr. Cournoyer.

STATEMENT OF STEPHEN N. COURNOYER, JR., CHAIRMAN, YANKTON SIOUX TRIBE

Mr. COURNOYER. Mr. Chairman, members of the Committee, my name is Steve Cournoyer. I am chairman of the Yankton Sioux Tribe. And we have approximately at this time 7,200 members of our tribe and that is increasing annually; 3,200 members of those people live on the reservation. And our unemployment rate is 80 percent to 90 percent, and it has not changed much in the last 5 years.

We are very much interested in seeing the project move forward at this time, giving us an opportunity to develop the only natural resources that we have. Although this small project for the Yankton Sioux Tribe is 3,000 acres, it is not going to eliminate the social and economic problems that we face at this time.

I think by supporting the Lake Andes-Wagner project and bringing about some of these processing plants and other industry that will come in, you know, if there is an irrigation project out there, will help the members of the Yankton Sioux Tribe find that pride

again and, you know, gain that knowledge or, you know, be able to fit into mainstream of society.

I think that this will also provide other opportunities for the Yankton Sioux Tribe. I think we need to have some successes out there. You know, we have often become too used to having failures. And it is difficult for us to look to the future at this time. And if we do not make an attempt by doing something about that, I think the problems that we face, you know, 10, 15 years from now are going to be double and triple what they are now.

The demonstration project, I think, like Leo said, can only move forward. I mean, the full project can only move forward once a demonstration project shows that there is no adverse effects on the environment and the health of our people.

You know, selenium has been a needed element. It is too bad, in some cases, we have maybe high concentrations, you know, that affect the wildlife. It does not just affect the wildlife, it affects the people. We have got to look at some way to address that, so that, you know, we could either deal with it, or take it out of the soil and find a use for it elsewhere.

The Indian people in the Aberdeen area are already the lowest—they already have the lowest life expectancy, the highest infant mortality rate and highest rate of diabetes of any area across the whole Nation. And we are very concerned about the health of our people, you know, so that if this selenium is going to be that much of a problem, the Yankton Sioux Tribe will not support it, you know, the project. But I think that we need this project to find out, you know, what kind of problems we already have out there, you know, what is causing this high rate of infant mortality, lowest life expectancy—those kind of problems that we face already.

And the demonstration project will prove that beyond a shadow of a doubt, we hope. And we are looking forward, you know, to get this project started. The Yankton Sioux Tribe supports Marty II. And we have never gone on record yet as of supporting Lake Andes-Wagner. But as chairman of the tribe, I really feel that we need to support it, because Marty II does not offer us a solution to all the problems that we face today and into the future.

So I know time is short today, and I think Leo covered a lot of the things that, you know, are more technical and, you know, are related to farming today, talking about the small farmer. And I guess I could add that, you know, farming has been part of my background, because I farmed for 10 years myself out on a reservation. I know how difficult it is to make a living out there.

And, you know, there has got to be a way where we can turn something around so that there is a future out there for our young people. And by working together and supporting each other, I think, maybe we can solve some of the problems that we are facing out there.

So with that, I would like to conclude in stating that, if there is no authorization for Marty II, we were asked, you know, before the last hearing to submit an alternative to Marty II. We have done that. And we would be willing to submit that again, if it comes to that.

So thank you for the time, and we hope that we can work something out or get something accomplished here.

Thank you.
[The prepared statement of Mr. Cournoyer follows:]

YANKTON SIOUX TRIBE
BOX 248
MARTY, SO. DAK., 57361
384-3804 / 384-5687

PREPARED STATEMENT OF

THE HONORABLE STEPHEN COURNOYER, JR.

CHAIRMAN, OF THE YANKTON SIOUX TRIBE

Mr. Chairman, Members of the Sub-Committee:

I am deeply honored to be here testifying before you for the third time on the Lake Andes Wagner/Marty II Projects. The Yankton Sioux Tribe has an enrollment of 7,200 members increasing annually. There are approximately 3,200 members residing on the original reservation at this time. We have a 80-90% unemployment rate which hasn't changed much over the past five (5) years.

We are very much interested in seeing the project move forward as it would be an opportunity to develop the only natural resources that we have. Although the project wouldn't eliminate the Social and Economic problems we face on a daily basis it would offer an opportunity for something to become successful, paving the way for other opportunities.

We have become so use to disappointment and failure that it has often become difficult to look to the future, if we cannot get anything going out here then what will the future hold? Social and Economic problems double or triple what they are now?

The Demonstration Project in itself will only be a start, if the project shows that it is environmentally and economically sound

OFFICERS:
STEPHEN COURNOYER, JR.
EVERDALE SONGHAWK
DARRELL DRAPEAU
HARLAN HORNED EAGLE

BUSINESS & CLAIMS COMMITTEE YST

LOUIE ARCHAMBEAU
WILLARD BRUGUIER
RAYMOND COURNOYER
KENNETH HONOMICHL
EDWARD ZEPHIER, JR

YANKTON SIOUX TRIBE
BOX 248
MARTY, SO. DAK., 57361
384-3804 / 384-5687

then authorization of the full project should be committed from the start based on the outcome of the Demonstration Project.

We all agree that Selenium is a problem when not addressed but knowing it's there and managing it are two (2) different things. In this high tech world there has to be a way to manage if not a process to remove it.

We as Indian people in the Aberdeen Area are already aware of the facts that we have the highest infant mortality, lowest life expectancy and highest rate of diabetes of any Area across the Nation. Therefore, the Tribe would totally oppose any project that wasn't environmentally and health safe causing any increase in the problems our people are already facing.

If the Demonstration Project is not authorized the Yankton Sioux Tribe has prepared and presented to the Sub-Committee on water and power an alternative to Marty II that will be added for the record.

Thank you for the opportunity to present testimony on the Marty II Project and the positive outcome we've been waiting for.

Stephen N. Cournoyer, Jr.
Chairman
Yankton Sioux Tribe

OFFICERS:
STEPHEN COURNOYER, JR.
EVERDALE SONGHAWK
DARRELL DRAPEAU
MARLAN HORNED EAGLE

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LOUIE ARCHAMBEAU
WILLARD BRUGUIER
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EDWARD ZEPHIER, JR

Senator BRADLEY. Thank you very much for your testimony.
Mr. Parsley.

STATEMENT OF SCOTT PARSLEY, STAFF ASSISTANT, EAST RIVER ELECTRIC POWER COOPERATIVE

Mr. PARSLEY. Thank you, Mr. Chairman.

My name is Scott Parsley. I am the staff assistant of East River Electric Power Cooperative. I have also been asked today to represent Mid-West Electric Consumers Association in my testimony.

Mr. Chairman, we had the opportunity to testify before this Subcommittee last fall and appreciate the opportunity to be back here. I have submitted written testimony which is very similar to the testimony we offered last fall.

I would like to, however, reiterate East River and Mid-West's strong support for this project and for the full authorization of this modestly sized irrigation projected to be located in South/Central South Dakota, which is in a unique position to both stabilize and enhance the economic conditions in the area.

Because the project is located adjacent to Lake Francis Case in the Missouri River, there is an ideal access to the water necessary to provide a stable source for agricultural production in this area which is subject to wide economic variations due to the unpredictable nature of rainfall. The irrigation project would provide a major improvement in agricultural production and economic conditions of this region of South Dakota.

To validate the critical need for this project, we note that in June of 1989, Charles Mix County was declared as a drought disaster county by South Dakota Governor George Mickelson. Specifically, East River and Mid-West recognize this legislation as within the framework of the traditional development of Pick-Sloan Missouri River Basin program.

We support the extension of the traditional Federal payment features of Pick-Sloan, which will assure the Federal Government of payment of all irrigation investments above the irrigator's ability to pay. It will also provide for the Federal pumping power to this project.

East River in cooperation with its member system which serves the project area pledges its full cooperation to the project sponsors to assist in acquiring funding subject to the conclusions reached by the demonstration project. Finally, it is our desire to join the project sponsors in conveying to you our strong support for this project. We request this Subcommittee favorably recommend this legislation to the full committee in a timely manner.

Thank you.

[The prepared statement of Mr. Parsley follows:]

EAST RIVER
ELECTRIC POWER COOPERATIVE
121 Southeast First St Post Office Drawer E
Madison, SD 57042 Telephone (605) 256-4536

40 YEARS OF SERVICE 1950-1990

TESTIMONY SUBMITTED TO THE SUBCOMMITTEE

ON WATER AND POWER OF THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

BY EAST RIVER ELECTRIC POWER COOPERATIVE, INC., MADISON, SD

ON BEHALF OF LAKE ANDES-WAGNER/MARTY II PROJECT (S.2710)

Mr. Chairman and Members of the Subcommittee,

My name is Scott Parsley and I am Staff Assistant for East River Electric Power Cooperative, Inc. (East River) headquartered in Madison, (Drawer E) South Dakota 57042.

East River furnishes wholesale electric power to 26 rural and municipal electric distribution systems in the rural areas of eastern South Dakota and most of ten counties in western Minnesota. Included in the East River service area is the proposed Lake Andes-Wagner/Marty II Irrigation Project.

East River furnishes wholesale power supply to its member systems through a transmission network that consists of over 2,500 miles of transmission lines and 200 substations. Approximately one-half of the electric power supplied in the East River area is generated by the hydroelectric resources of Pick-Sloan Missouri River Basin Project. The balance of the power requirements are furnished by Basin Electric Power Cooperative, a bulk generation and transmission cooperative located in Bismarck, North Dakota. Basin Electric operates approximately 3,000 megawatts of coal-fired generation located in North and South Dakota and Wyoming. Currently, East River holds the largest contract for Federal power in the Eastern Division of the Pick-Sloan Missouri River Basin marketing area of the Western Area Power Administration.

I appeared before this Committee on behalf of East River in the fall of 1989 to state for the record East River's support for this project.

At this time we reiterate our strong support to this Subcommittee and to Congress for the authorization and subsequent funding of this modestly sized irrigation project located in south central South Dakota which is in a unique position to both stabilize and enhance the economic conditions in Charles Mix County, South Dakota.

Because the project is located adjacent to Lake Francis Case on the Missouri River, there is ideal access to the water necessary to provide a stable source for agricultural production in this area which is subject to wide economic variations due to the unpredictable nature of rainfall. This irrigation project would provide a major improvement in agricultural production and economic conditions of this region of South Dakota. To validate the critical need for this project, we note that in June of 1989, Charles Mix County was declared a "drought" disaster county by South Dakota Governor George Mickelson.

Specifically, East River recognizes this legislation is within the framework of the traditional development of the Pick-Sloan Missouri Basin Program. We support the extension of the traditional Federal repayment features of Pick-Sloan which will assure the Federal government of payment for all irrigation investment above the irrigators ability to pay. It will also provide for Federal "pumping power" to this project.

We believe that the project sponsors have demonstrated a clear willingness to compromise on certain sensitive issues by directly addressing in their legislative proposal concerns relating to surplus crops by agreeing to base farm programs on the "dryland" production index. The project sponsors are also aggressively pursuing the development of "value-added" agricultural processing as an outgrowth of this project.

As example, East River and others in the project area have funded a feasibility study to examine the potential of development of alternative crops which could be produced if an assured water supply for irrigated agriculture becomes available. Results of that feasibility study point to positive potentials which would be materially enhanced provided the stability of irrigation can be introduced into this area.

East River, in cooperation with its member system which serves the project area, pledges its full cooperation to the project sponsors to assist in acquiring funding subject to the conclusions reached by the demonstration project.

Finally, it is our desire to join the project's sponsors in conveying to you our strong support for this project. We request this Subcommittee favorably recommend this legislation to the full Committee in a timely manner.

EAST RIVER
ELECTRIC POWER COOPERATIVE
121 Southeast First St. Post Office Drawer E
Madison, SD 57042 Telephone (605) 256-4536

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TESTIMONY SUBMITTED TO THE SUBCOMMITTEE

ON WATER AND POWER OF THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

BY EAST RIVER ELECTRIC POWER COOPERATIVE, INC., MADISON, SD

ON BEHALF OF MID-DAKOTA RURAL WATER PROJECT (S.1765)

East River Electric Power Cooperative recognizes the importance to South Dakota and its people of responsible water development; we are also mindful of the changing priorities which have evolved over the decades with respect to water development and the needs of the citizens of this state. Since the organization of East River, the Cooperative and its member systems have adopted policy positions in support of irrigation and water development consistent with criteria established with the original enactment of the Flood Control Act of 1944 and subsequent authorizations which are now known as the Pick-Sloan Missouri Basin Project.

For numerous and complex reasons, irrigation development through the Garrison Diversion and Oahe projects, and many other smaller irrigation projects, have not materialized as a means of creating economic development in North Dakota and South Dakota. With the reformulation of the Garrison Diversion Project and the defeat of the Oahe Irrigation development efforts, promised benefits from the Project for these two states are being reassessed in numerous quarters.

East River also shares the frustration of unfilled upstream economic development as a result of these Projects not being developed while major downstream flood control and navigational benefits which have been realized make no Project reimbursement.

Fundamental to the entire development of the Pick-Sloan Plan is the fact that hydroelectric power is the cash register of the Project, paying 100% of its allocated costs and those costs beyond the ability of the irrigators to repay. Because the marketing of power production from the dams is the only significant source of revenue, elected officials and others have regularly looked to them as a potential source of revenues for state operations or a solution to Federal deficit problems, while ignoring such benefits as hunting, fishing, and recreation, as well as navigation and flood control both up and down stream which make no contribution to the repayment obligation.

Other special interest groups, some serving legitimate public needs but who are not eligible to directly receive Federal hydropower under current criteria are seeking direct allocations of low-cost hydropower. Such allocations, if granted from the fully allocated, finite resources of the mainstem hydro system will diminish the amount of hydropower currently marketed by contract to the 230 preference customers in the region. These non-profit rural and municipal electric systems, including East River, distribute the benefits of Pick-Sloan hydropower among all users thereby assuring equal treatment and maximum benefits to these users.

It is in the context of these many claims being made upon the Missouri River Pick-Sloan Project that East River endorses the position of Mid-West Electric Consumers Association in support of important refinements to Pick-Sloan Project legislation which will revitalize 'ultimate development' while meeting contemporary needs. Accordingly, East River endorses the following principles:

1. Extending use of Pick-Sloan seasonal (summer) irrigation pumping power to be made available at the preference rate to new domestic rural water systems which meet the following criteria and conditions:

    a. The water system is a multi-user rural domestic system whose principle purpose is to furnish 'bulk' water supply; and

    b. The domestic rural water system uses Missouri River water or water from Pick-Sloan reservoirs; and

    c. The seasonal pumping power for such domestic water systems will be provided for 'lift' and pressurization of the main trunk line; and

    d. The seasonal pumping power will be provided to the domestic rural water system at the preference customer rate through an existing preference customer and will be passed through at 'cost.' The existing preference customer will be assigned utility responsibility for the rural domestic water system providing the domestic water system with its additional power requirements during the winter season at the current rate for similar retail customers; and

    e. To the extent that seasonal irrigation power is used for this new purpose, the total amount of irrigation pumping power available for future irrigation development in Pick-Sloan will be reduced by a commensurate amount.

We support these refinements to Pick-Sloan as an expression of our belief that seeking reasonable compromises can serve to improve the economic conditions of the rural areas in South Dakota and the Missouri River Basin.

Likewise, we register our strong support to the Mid-Dakota Rural Water Project that will be a water supply delivery system to several thousand residents in rural South Dakota. A water supply that will afford to the recipient a sufficient quantity of quality clean safe drinking water. We believe that the Mid-Dakota Rural Water Project meets all of the criteria as outlined in this testimony and therefore should be considered as a full project participant. As a result of this water development project, the economic future of east central South Dakota which was on the verge of collapse will be rejuvenated by the flow of clean safe water supply.

Specifically, we strongly endorse Section 5 of the proposed authorizing legislation. This provision would allow the Mid-Dakota Rural Water Project to receive a summer allocation of hydro electric power at the firm power rate to be delivered by the local rural electric cooperatives at cost. Additionally, the local rural electric cooperative systems are fully capable of and will provide the power supply needs of the project during the winter season at the retail rate available for similar retail customers.

East River believes that it is appropriate to address the contemporary needs of rural South Dakota and provide reasonable support to those who are trying to meet these needs.

We reassert, however, our opposition to the use of Federal hydro allocations to special interest groups which may seek to reduce their costs by converting power supply from current rural electric cooperative service and becoming direct customers of the Pick-Sloan Missouri Basin Project.

We believe the present method of delivering Pick-Sloan hydro-power, which affords all rural electric consumers served through East River and its member systems an equitable share of the hydro allocation held by East River, serves the public purpose intended by Pick-Sloan in the best manner possible. Accordingly, we resist any direct allocation of Federal power to a defined class of special user group.

East River remains committed to work with other preference power customers, State and Federal governments to preserve preference for cooperatives, municipal systems and state agencies in the marketing of Federal hydro power. We pledge to work with all responsible entities to ensure that the criteria upon which projects may be added to the Project redefines allocations and repayment responsibilities in a manner that recognizes power users' contractual rights, their investment in the regional Joint Transmission System and the reliance on such cost-based power supply as an essential part of being able to provide affordable electric service to rural consumers.

Rural electric and municipal systems have the responsibility to see that a broad range of interests do not use the Project at the expense of the hundreds of thousands of ultimate consumers served by the preference systems who have paid for the dams through their rates and have paid for the addition of hundreds of millions of dollars in

the electric transmission system and related facilities. These consumers, through their cooperative and municipal systems not only have the legal rights established by Congress, but have proprietary rights through their investment in the Missouri Basin Joint Transmission System which makes the efficient delivery of Federal hydropower possible.

Senator BRADLEY. Thank you very much for your testimony.

Well, let me say to Mr. Cournoyer and to Mr. Holzbauer how effective I thought your testimony was. I recognize that, you know, you have serious problems, and I also recognize that you have the best of intentions. And I also recognize that you represent the best of what we have in a way in the country. So the subcommittee will try to be helpful.

At the same time, I look at the time horizon here, and I have some questions about this. I would like to explore with you some of my questions, if I could.

In the bill, it includes authorization for Lake Andes-Wagner and Marty II project facilities for rural water supply. What do you have in mind here? Mr. Holzbauer?

Mr. HOLZBAUER. What that amounts to is, yes, we do have a rural water system in our area, but that system was one of the first, and we have maxed out.

Senator BRADLEY. So it needs to be upgraded?

Mr. HOLZBAUER. And if—or not if, but when the processing people come to our area with this after our project has been constructed, we are going to need more use of that water in our areas. And our system has just about what we might say maxed out on that.

Senator BRADLEY. Okay, so this is in anticipation of future growth?

Mr. HOLZBAUER. Yes, it is.

Senator BRADLEY. Where does Lake Andes and Wagner get their water now?

Mr. HOLZBAUER. The rural water system? It comes from the dam.

Senator BRADLEY. From the existing rural waters.

Mr. HOLZBAUER. It comes from the Missouri River from the Fort Randal dam.

Senator BRADLEY. And what about Yankton Sioux reservation?

Mr. COURNOYER. Okay, we get most of our water from rural water system, coming off the same line that, you know, feeds Wagner. In Wagner, we have two housing areas that feed off the Wagner system, and it is all pretty much the rural system, except out in the communities, there is a number of people that have their own wells right now. But, you know, just like we have been talking about, the quality of water is going down, you know, every year.

Senator BRADLEY. So you need to basically upgrade it.

Mr. COURNOYER. And we would have to add on——

Senator BRADLEY. Let me ask you both, let us assume that we did the selenium study, and it came out 10 years from now that the project was too dangerous, with high quantities of selenium. What would you do? Obviously, the project would not go forward. But, in terms of yourself, what would you do?

Mr. HOLZBAUER. With our past experience, Chairman, we have been irrigating, like I said, for the past—myself—that past 33 years. This is the 33rd year that I have been involved, myself, with irrigation. In fact, we got permit number 292 in the State of South Dakota, and that goes way back—1957.

And we have been irrigating, and we have been producing crops on that land. And we honestly feel that there is not going to be a

problem on our soils. But we are willing to take that step to find this out. And if there is, we will have to do other things. There is just no question. We do not want an environmentally unsafe area for ourselves and our children.

We are going to mass—tackle that problem when the time comes. But we feel there will not be a problem.

Senator BRADLEY. Mr. Cournoyer?

Mr. COURNOYER. Can you repeat the question again?

Senator BRADLEY. Yes—well, I think I know the answer. The answer would be the same as Mr. Holzbauer, which basically is, if it came back that there were high concentrations of selenium, you do not——

Mr. COURNOYER. Well, I guess, what we would have to do is, we would ask for the alternative to Marty II.

Senator BRADLEY. Right.

Mr. COURNOYER. Because I think our people on the reservations, a lot of times, do not have the chances to go on——

Senator BRADLEY. So you still support the economic development package as an alternative to Marty II?

Mr. COURNOYER. Yes.

Senator BRADLEY. And do you also support the Indian preference language that is in the bill?

Mr. COURNOYER. Yes.

Senator BRADLEY. Do you think it will be helpful to the tribe?

Mr. COURNOYER. I think it will be. I think it will—if we can have one success, I think, other things will start to happen. Right now, we have too many failures.

Senator BRADLEY. And do you think that you have an adequate role in the demonstration program?

Mr. COURNOYER. Yes, I think so. We have several people that became involved and got to know quite a bit about the project itself.

Senator BRADLEY. Well, let me thank you for your testimony. Let me just say that, as I think about this, I have tried to put myself in your place—here you are, you have been irrigating for 33 years or however long, you have a way of life, you have your families, you make your living from the ground, you care about your neighbors, and all those things.

And here we have a project where we are going to go through 9, 10, 11, 12 years before we are able to determine whether there is a problem. When you talk about actually getting the money appropriated for the demonstration and everything geared up, and—12 years. And then, if it is a go, the bill says six years, but you and I both know, you know, that probabiy will be stretched out.

So we are talking about a minimum of 20 years from now before any water is actually going to reach you from this project. And, think about what happened 20 years ago. Think what would happen in 1970, or what had not happened. The oil embargo had not happened, there had not been the Three Mile Island accident. There had not been a space shuttle.

There are so many things that could happen in the next 20 years. Nobody is going to know what agricultural markets are like. Mr. Parsley cannot tell us today what the cost of power is going to be. Who knows what the water quality standards are going to be.

I hope you can appreciate my own dilemma here, as to whether you go ahead and authorize something for 20 years down the road before you have any of the essential information required to proceed. But that is for the Committee to deliberate. I just wanted to share with you my own concern because my desire is really to try to help. I do think that the sponsors of the legislation have gone a good distance to try to meet other issues that have arisen in the course of water policy.

And so, we will have to struggle with that on the Committee. But I thank you for your own testimony and for your expressions. Do you have any parting comment? Feel free to make it.

Mr. HOLZBAUER. Well, what I would have to say myself, Mr. Chairman, is the fact that, you know, we have been working for well over 20 years in trying to move forward, and we realize that. If we do not start some place, we never will maintain our area for our children. Because our population has been declining and declining, our incentive of our children to be here—to be there, I should say, at home—is becoming less and less.

And we have got to have that assurance that we have someone for our area, for our people, for development.

Senator BRADLEY. Okay, I thank you very much. Thank you.

Mr. HOLZBAUER. Thank you.

Senator BRADLEY. We now turn to S. 1765. We are operating under, unfortunately, a very tight time schedule, because there is a vote scheduled in 20 minutes. So what we should do is, if Mr. Underwood would not mind—would you mind appearing with the first public witnesses? Okay, let us have Mr. Underwood, and then Susan Hargens, accompanied by Julie Apgar, Dr. John Carr and Scott Parsley is still—Mr. Parsley, you do not have to leave. You and Mr. Underwood are all-purpose witnesses here.

I think that the best way to proceed here is, since we do have this time problem, is to, let us have your full testimony submitted to the record and each one of you make the five or six key points that you would like to make for the Committee. We will have your testimony. There is no point to read it. We have already read it. Now, if you want to read it, fine, but we are going to have to cut you off. So the main point is, make your points, if you can, one, two, three, four, five, this is what we think about this bill and why.

So why do I not begin with Mr. Underwood and then go with Mr. Parsley.

STATEMENT OF DENNIS B. UNDERWOOD, COMMISSIONER, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR, ON S. 1765

Mr. UNDERWOOD. Thank you, Mr. Chairman.

This is one of those, as I indicated to you before, that is another major issue facing the Nation, and that is to provide a safe and a dependable drinking water supply for rural America, especially in trying to meet the Safe Drinking Water Act requirements. Not only does a dependable safe supply provide for improving the quality of life, but it also provides opportunities for economic diversity. This is especially important when you consider the mineral content

of the ground waters in South Dakota that would be replaced by Missouri water in this particular case.

When you were talking before about a dilemma or a struggle, I have the same type of struggle with this case, because I am now going to give you the administration's position regarding the bill. Coming from a State organization before and being involved in water resources management and development, developing and providing for safe and dependable water supplies for rural America has been something of major interest to me.

The Administration definitely recognizes the problems and concerns in providing for safe and dependable rural water supplies. However, it must oppose S. 1765 as introduced for two major reasons. One relates to the cost-sharing provisions, and the other to the planning process.

In terms of the current Federal policy, municipal and industrial water supply projects require that non-Federal interests repay 100 percent of the cost at current interest rates. This is my dilemma and struggle, knowing that many of these rural areas cannot afford to pay for full costs at current interest rates in order to provide dependable and safe water supplies.

The Administration also requires preparation of Federal reports consistent with government-wide principles and guidelines for water resources planning, including economic analysis, National Environmental Policy Act compliance and engineering feasibility. If in fact you are going to have a Federal program that provides for rural water supply development, then we need to have some kind of oversight in terms of the planning, design, and compliance.

And that is why from a planning point of view the Administration would have an objection with the project itself.

And with that, I will quit and let you ask questions.

[The prepared statement of Mr. Underwood follows:]

STATEMENT OF DENNIS B. UNDERWOOD, COMMISSIONER, BUREAU OF RECLAMATION, BEFORE THE SUBCOMMITTEE ON WATER AND POWER ON S. 1765, A BILL TO AUTHORIZE THE PLANNING AND CONSTRUCTION OF THE MID-DAKOTA RURAL WATER SYSTEM IN SOUTH DAKOTA.

June 19, 1990

I am pleased to appear before this Committee to discuss S. 1765, a bill to provide funds to the Secretary of the Interior for the planning and construction of the Mid-Dakota Rural Water System, and for other purposes.

While we recognize the concerns the bill is intended to address, the Administration must oppose S. 1765 as introduced. The two major objections relate to cost sharing provisions and the planning process.

Current Federal policy for water resources projects requires that non-Federal interests repay, at current interest rates, 100 percent of project costs for municipal and industrial water supply. With respect to the planning process, Administration policy requires the preparation of a Federal report consistent with Government wide principles and guidelines for water resources planning. These reports include economic analysis and National Environmental Protection Act (NEPA) compliance in addition to determining the engineering feasibility of the project.

Ensuring that rural America has reliable and safe water supplies that meet the provisions of the Safe Drinking Water Act is a nationwide challenge. Safe and dependable water supplies are important to the quality of life and opportunities for economic diversity in rural America. It is generally recognized that compliance with the Safe Drinking Water Act, including participation in a joint or regional facility, is financially difficult for many small rural communities.

The regional rural domestic water system proposed in S. 1765 would address serious water quality and water supply problems in a 10-county area in central South Dakota. The project consists of pumping approximately 1 1/2 billion gallons per year from Oahe Reservoir through more than 2,700 miles of pipeline to serve 23 towns, more than 7,000 rural households, more than 500 livestock deliveries, and about 70 seasonal connections. The system would serve about 29,000 people and 600,000 head of livestock. The Mid-Dakota project sponsors have formulated a regional project that meets a critical need and has nearly unanimous support in the state.

Environmental impacts associated with project construction would be mitigated on an acre-for-acre basis and a wetland enhancement plan will be implemented as part of the wildlife mitigation program.

Reclamation has reviewed Mid-Dakota's consultant's report and concluded the project is feasible from an engineering standpoint. We have also reviewed the project's fish and wildlife mitigation and enhancement plans. We believe the Project sponsors have developed an adequate environmental analysis which could be used by Reclamation to initiate the NEPA process should this bill be enacted. Additional analysis, particularly in the area of cultural resources, would be required prior to construction.

Section 2 (a) and (b) of S. 1765 authorizes appropriations up to $100 million for project planning and construction and details the financial assistance that project developers would receive. Reclamation believes, however, and the sponsors concur, that the project will cost approximately $108.4 million. Costs for the wetland enhancement features, however, are not included in Reclamation's cost estimate or Section 2(a) of the bill.

At an April 17, 1990, public hearing on the project, the Governor of South Dakota pledged $5 million toward project construction costs. He also indicated that local sponsors have the capability for contributing an additional $26.6 million to support the project. However, S. 1765 does not specify the minimum upfront cost sharing or the minimum capital investment subject to repayment with interest.

We recognize the concerns regarding safe drinking water in rural areas of South Dakota. However, the Administration opposes S. 1765 for the reasons previously cited.

Under provisions of S. 1765, financial assistance for the Mid-Dakota Rural Water System would be in the form of grants and loans under the Farmers Home Administration Act (P.L. 87-128) necessary to make the project affordable to the user. The exception is that P.L. 87-128 limits grants to 50 percent of project costs. S. 1765 allows grants to exceed 75 percent of eligible development costs to the extent that the user rate should be reduced to a reasonable level, irrespective of household income. However, a reasonable level is not defined and could be subject to significant debate should this bill be enacted. Loans would be charged interest at the rate of 5 percent a year, instead of current interest rates. Furthermore, interest would not be charged during construction, as is routinely required under Federal policy.

Current Reclamation policy concerning repayment of municipal and industrial water projects differs markedly from Farmers Home Administration Act financial assistance provisions. Municipal and industrial water projects authorized under Reclamation law require 100 percent repayment. Interest is charged during construction at the

current rate, which at this time is about 10 percent a year.

This legislation provides for Federal grants which may exceed 75 percent of eligible development costs estimated at $108.4 million, loans at less than current market rates, and limited cost sharing potential. Further, the full cost of both capital and O & M for wetland development and enhancement are a Federal responsibility. At a time when efforts are being made to reduce the Federal budget deficit, the proposed financial assistance for Mid-Dakota Rural Water System would constitute an unacceptable commitment of Federal dollars.

Section 3 of S. 1765 provides that no funds are to be obligated for the Mid-Dakota Rural Water System until water conservation programs have been developed and implemented. This provision is intended to ensure that water is used efficiently so that project costs are minimized. Language should be added to ensure NEPA compliance.

Section 4 addresses mitigation measures for loss of fish and wildlife habitat as a result of project development and operation. S. 1765 does not make clear that these costs should be allocated to the project for purposes of repayment. Costs associated with facilities and project features which would enhance fish and wildlife benefits beyond that needed for mitigation would be nonreimbursable. Reclamation believes that this activity would be appropriate non-Federal cost participation.

Section 5 of S. 1765 provides for the use of Pick-Sloan Missouri River Basin Program power for Mid-Dakota pumping and operational purposes during the summer electrical use season.

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Section 6 specifies construction of the Mid-Dakota Rural Water System will in no way preclude the State of South Dakota from seeking congressional authorization for future federally assisted water resources project.

Section 7 would protect the State of South Dakota's water rights from any presumption or alternation as a result of development of the Mid-Dakota Rural Water System.

This concludes my statement. I would be pleased to answer any questions members of the Committee may have at this time.

Senator BRADLEY. Mr. Parsley.

Mr. PARSLEY. Again, I am representing East River Electric and Mid-West Consumer Electric Association.

Mr. Chairman, just very briefly, we think that there are some very historic provisions contained within this bill in terms of the electrical supply for this water development project. East River and Mid-West strongly support this water development project in the middle of South Dakota and think it is a very vital need in the State and identifies the contemporary needs of States like South Dakota.

Therefore, in reviewing those contemporary needs, we think it is very appropriate that this project be allocated a hydro-allocation for the summer pumping purposes, which would be taken from the irrigation pumping power that has been allocated to the Oahe Project and projects like that in South Dakota and in the Missouri basin region.

Our written testimony that we had submitted has outlined our position on this very clearly. And we support not only the project but very strongly support Section 5 of the bill, which would be the power supply portion of the project.

With that, Mr. Chairman, I will turn the microphone over to the project.

Senator BRADLEY. Susan Hargens.

STATEMENT OF SUSAN HARGENS, CHAIRWOMAN, MID-DAKOTA RURAL WATER SYSTEMS, INC., ACCOMPANIED BY JULIE APGAR, EXECUTIVE DIRECTOR

Ms. HARGENS. Mr. Chairman, and members of the Committee, I am Susan Hargens, chairwoman of the Mid-Dakota Rural Water System. I would like to present testimony in support of S. 1765.

The area to be served by the proposed Mid-Dakota Rural Water System covers all or part of a 12-county region in central South Dakota. The project represents essentially the only area east of the Missouri River not yet served by a rural water system.

The project will pipe treated Missouri River water to rural homes, pasture sites, businesses and communities through over 2,700 miles of buried pipe. These sign-ups represent service to over 30,000 rural residents and over 647,000 head of livestock. I include the livestock figures, as agriculture is the predominant source of income in this rural section of the State.

Within the project borders are a diverse group of individuals ranging from farmers, ranchers, doctors, housewives, clerks, et cetera. Despite the differences, there is a common thread—the need for a safe, reliable supply of water for human and animal consumption. I am sure you have heard of the water quality and quantity conditions in the South Dakota through the testimony of Web and Mni Wiconi representatives. Our situation is no different. The problems are common and widespread and require a regional solution.

The source of domestic water for the majority of the rural homes, as well as the communities in the project area, is poor quality ground water. Reliance upon this poor quality water imposes a con-

tinuing regional economic restraint in addition to health-related concerns.

Of the 24 communities signed up, only 11 provide a form of treatment to the water. Despite treatment of the water, only one community that will be participating in the system has a water supply that exceeds Federal standards. This community's water source is from the Missouri River. The quality of the existing private facilities used by farms and rural residences is not as thoroughly monitored as is the water supply in communities. Generally, though, it is believed that the chemical quality of private supplies is similar to that of public supplies.

A unique provision that is being proposed to be included in the Mid-Dakota authorizing legislation is a wetland development and enhancement component. In recognizing the national value of wetland areas, the Mid-Dakota sponsors in conjunction with various Federal, State and local agencies have put together a proposal that will enhance, restore, create and maintain wetland areas. The use of both treated and untreated Missouri River water is envisioned to enhance existing wetland acres.

In summarizing, the $108.4 million Mid-Dakota rural water system represents a contemporary water project designed to alleviate a regional water supply problem. Additionally, the project sponsors propose to include in the authorizing legislation, an innovative wetland enhancement and development component designed to reduce the degradation and loss of wetlands thereby promoting and preserving the region's water fall and wildlife.

The Mid-Dakota project has come a long way in a relatively short period of time primarily due to the cooperation of a diverse group of interests, including, but not limited to, the local residents, State and Federal officials water interest, public power interest and wildlife groups.

On the subject of cost-share, State and local expenditures on the Mid-Dakota have exceeded $450,000. Over $89,000 has been collected in good intention fees, and it is anticipated that $750,000 to $1 million will be collected in hook-up fees upon the authorization of the project.

As drafted the authorizing legislation will enable the local project sponsor to provide $26.66 million, which, when combined with $5 million of State funds, amounts to $31.66 million of the total $108.4 million.

For the record, I am submitting the project's engineering report, resolutions of support and testimony from town and county officials and local residents. Speaking for the 30,000 people that stand to benefit from the Mid-Dakota project, we badly need this system, not only for health reasons, but also for the stabilization and growth of our rural economies.

We need your help in making the Mid-Dakota rural water system a reality and respectfully urge your approval of S. 1765.

Thank you.

[The prepared statement of Ms. Hargens follows, additional materials have been retained in subcommittee files:]

TESTIMONY OF SUSAN HARGENS
BEFORE THE
SUBCOMMITTEE ON WATER AND POWER
U.S. SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES
JUNE 19, 1990

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I AM SUSAN HARGENS, CHAIRWOMAN OF THE MID-DAKOTA RURAL WATER SYSTEM. I WOULD LIKE TO PRESENT TESTIMONY IN SUPPORT OF S.1765.

THE AREA TO BE SERVED BY THE PROPOSED MID-DAKOTA RURAL WATER SYSTEM COVERS ALL OR PART OF A TWELVE COUNTY REGION IN CENTRAL SOUTH DAKOTA. THE PROJECT REPRESENTS ESSENTIALLY THE ONLY AREA EAST OF THE MISSOURI RIVER NOT YET SERVED BY A RURAL WATER SYSTEM. THE PROJECT WILL PIPE TREATED MISSOURI RIVER WATER TO RURAL HOMES, PASTURE SITES, BUSINESSES AND COMMUNITIES THROUGH OVER 2,700 MILES OF BURIED PIPE. TO DATE RESIDENTS HAVE PAID GOOD INTENTION FEES FOR 2009 RURAL HOMES, 608 PASTURE CONNECTIONS, 311 OTHER HOOK-UPS AND 24 COMMUNITIES RANGING IN POPULATION FROM 43 TO 13,000. THESE SIGN-UPS REPRESENT SERVICE TO OVER 30,000 RURAL RESIDENTS AND OVER 647,000 HEAD OF LIVESTOCK. I INCLUDE THE LIVESTOCK FIGURES, AS AGRICULTURE IS THE PREDOMINANT SOURCE OF INCOME IN THIS RURAL SECTION OF THE STATE.

WITHIN THE PROJECT BORDERS ARE A DIVERSE GROUP OF INDIVIDUALS RANGING FROM FARMERS, RANCHERS, DOCTORS, HOUSEWIVES, CLERKS, ETC. DESPITE THE DIFFERENCES THERE IS A COMMON THREAD-THE NEED FOR A SAFE, RELIABLE SUPPLY OF WATER FOR HUMAN AND ANIMAL CONSUMPTION. I'M SURE YOU HAVE HEARD OF THE WATER QUALITY AND QUANTITY CONDITIONS IN SOUTH DAKOTA THROUGH THE TESTIMONY OF WEB AND MNI WICONI REPRESENTATIVES. OUR SITUATION IS NO DIFFERENT, THE PROBLEMS ARE COMMON AND WIDESPREAD AND REQUIRE A REGIONAL SOLUTION.

THE SOURCE OF DOMESTIC WATER FOR THE MAJORITY OF THE RURAL HOMES AS WELL AS THE COMMUNITIES IN THE PROJECT AREA IS POOR QUALITY GROUND WATER. RELIANCE UPON THIS POOR QUALITY WATER IMPOSES A CONTINUING REGIONAL ECONOMIC RESTRAINT, IN ADDITION TO HEALTH RELATED CONCERNS. OF THE 24 COMMUNITIES SIGNED UP, ONLY 11 PROVIDE A FORM OF TREATMENT TO THE WATER, OF THESE 11 TOWNS, 5 PROVIDE CHLORINATION, 2 PROVIDE SOFTENING, 2 PROVIDE ONLY

FLUORIDATION, 1 PROVIDES FILTRATION AND 1 PROVIDES CHLORINATION, FLUORIDATION AND SOFTENING.

DESPITE TREATMENT OF THE WATER ONLY 1 COMMUNITY THAT WILL BE PARTICIPATING IN THE SYSTEM HAS A WATER SUPPLY THAT EXCEEDS FEDERAL STANDARDS. THIS COMMUNITY'S WATER SOURCE IS THE MISSOURI RIVER. UTILIZING AN ARMY CORP OF ENGINEERS RANKING SYSTEM OF GOOD, FAIR, POOR AND BAD, 5 COMMUNITIES RANKED FAIR-INDICATING THAT THE WATER MEETS ALL OF THE FEDERAL AND STATE PRIMARY DRINKING WATER STANDARDS. HOWEVER, ONE OR MORE OF THE FEDERAL RECOMMENDED STANDARDS FOR NUISANCE OR SECONDARY ITEMS IS EXCEEDED. 4 COMMUNITIES RANKED POOR-INDICATING ONE OR MORE PRIMARY WATER QUALITY STANDARDS MAY NOT BE MET IN THE WATER SUPPLY AND/OR EXCESSIVE LEVELS OF NUISANCE CONTAMINANTS EXIST. THIS WATER SHOULD NOT BE USED AS A DRINKING WATER SOURCE. AND, 7 TOWNS RANKED BAD-INDICATING THAT THIS WATER COULD HAVE DETRIMENTAL EFFECTS ON THE INDIVIDUALS USING IT. THIS WATER SUPPLY IS NOT RECOMMENDED TO BE USED AS A SOURCE OF POTABLE WATER. THE WATER DOES NOT MEET ONE OR MORE PRIMARY DRINKING WATER STANDARDS AND/OR HAS EXCESSIVE AMOUNTS OF SULFATES, HARDNESS, OR TDS ABOVE THE UPPER MAXIMUM LIMIT RECOMMENDED FOR HUMAN CONSUMPTION.

THE QUALITY OF THE EXISTING PRIVATE FACILITIES USED BY THE FARMS AND RURAL RESIDENCES IS NOT AS THOROUGHLY MONITORED AS IS THE WATER SUPPLY IN COMMUNITIES. GENERALLY THOUGH, IT IS BELIEVED THAT THE CHEMICAL QUALITY OF PRIVATE SUPPLIES IS SIMILAR TO THAT OF PUBLIC SUPPLIES. MOST OF THE WATER IS HIGH IN IRON, MANGANESE, SODIUM, SULFATE, AND TOTAL DISSOLVED SOLIDS. THESE HIGH MINERAL LEVELS CAUSE HEALTH PROBLEMS IN HUMANS INCLUDING DIARRHEA, DIGESTIVE COMPLICATIONS, AND HIGH BLOOD PRESSURE, WHICH CAN LEAD TO STROKES, HEART DISEASES AND KIDNEY DISEASE. THE POOR WATER QUALITY CAUSES STRESS ON LIVESTOCK RESULTING IN REDUCED MILK PRODUCTION, WEIGHT LOSS, DEHYDRATION AND IN MANY CASES DEATH IN YOUNG LIVESTOCK.

IN ADDITION TO THE HIGH MINERAL LEVELS, A REVIEW OF THE WATER QUALITY TESTS FROM INDIVIDUAL WELLS WITHIN THE PROJECT AREA CONFIRMS A HIGH OCCURRENCE OF EXCESSIVE NITRATE LEVELS AND BACTERIA. SINCE 1980, 42% OF THE PRIVATE WELLS TESTED EXCEEDED THE RECOMMENDED LEVELS OF BACTERIA AND NITRATES. THIS IS OF PARTICULAR CONCERN AS FARM WELLS ARE NOT TESTED AS REGULARLY AS ARE PUBLIC SUPPLIES.

A UNIQUE PROVISION THAT IS BEING PROPOSED TO BE INCLUDED IN THE MID-DAKOTA AUTHORIZING LEGISLATION IS A WETLAND DEVELOPMENT AND ENHANCEMENT COMPONENT. IN RECOGNIZING THE NATIONAL VALUE OF WETLAND AREAS, THE MID-DAKOTA SPONSORS, IN CONJUNCTION WITH VARIOUS FEDERAL, STATE AND LOCAL AGENCIES HAVE PUT TOGETHER A PROPOSAL THAT WILL ENHANCE,

RESTORE, CREATE AND MAINTAIN WETLAND AREAS. THE USE OF BOTH TREATED AND UNTREATED MISSOURI RIVER WATER IS ENVISIONED TO ENHANCE EXISTING WETLAND ACRES. ANOTHER PROVISION ALLOWS FOR THE CREATION OF WETLAND ACRES FOR USE IN WASTEWATER TREATMENT. THE LARGEST COMPONENT OF THE PROGRAM STEMS FROM THE NORTH AMERICAN WATERFOWL MANAGEMENT PLAN'S JOINT VENTURES WHICH BRING TOGETHER BOTH PRIVATE AND PUBLIC SUPPORT FOR THE CONSERVATION OF KEY WATERFOWL HABITAT REGIONS. THE ATTRACTION OF UTILIZING THE JOINT VENTURE CONCEPT IS THAT IT CAN BE TAILORED TO SUIT THE INDIVIDUAL LANDOWNER-OPERATOR. WETLAND AREAS CAN BE MANAGED AND DEVELOPED THROUGH COOPERATIVE AGREEMENTS TO PROTECT EXISTING WETLANDS, RESTORE DRAINED WETLANDS, DEVELOP NEW WETLANDS AND PROTECT NESTING COVER.

IT IS PROPOSED THAT $7 MILLION DOLLARS BE PLACED IN A TRUST AND ADMINISTERED BY THE SOUTH DAKOTA GAME, FISH AND PARKS FOUNDATION. $3 MILLION DOLLARS WILL BE NEEDED TO CONSTRUCT THE FEATURES FOR THE TREATED, UNTREATED AND CONSTRUCTED COMPONENTS. THE TOTAL FEDERAL EXPENDITURE FOR THE WETLAND COMPONENT IS $10 MILLION.

IN SUMMARIZING, THE 108.4 MILLION DOLLAR MID-DAKOTA RURAL WATER SYSTEM REPRESENTS A CONTEMPORARY WATER PROJECT DESIGNED TO ALLEVIATE A REGIONAL WATER SUPPLY PROBLEM. ADDITIONALLY, THE PROJECT SPONSORS PROPOSE TO INCLUDE IN THE AUTHORIZING LEGISLATION AN INNOVATIVE WETLAND ENHANCEMENT AND DEVELOPMENT COMPONENT DESIGNED TO REDUCE THE DEGRADATION AND LOSS OF WETLANDS, THEREBY PROMOTING AND PRESERVING THE REGION'S WATERFOWL AND WILDLIFE.

THE MID-DAKOTA PROJECT HAS COME A LONG WAY IN A RELATIVELY SHORT PERIOD OF TIME, PRIMARILY DUE TO THE COOPERATION OF A DIVERSE GROUP OF INTERESTS INCLUDING-BUT NOT LIMITED TO THE LOCAL RESIDENTS, STATE AND FEDERAL OFFICIALS, WATER INTERESTS, PUBLIC POWER INTERESTS AND WILDLIFE GROUPS.

ON THE SURFACE THESE GROUPS MAY APPEAR TO HAVE DIFFERENT INTERESTS BUT WHEN YOU GET DOWN TO IT, IN ORDER TO SURVIVE IN RURAL AMERICA IN THE 90'S WE ALL HAVE TO COMPROMISE A LITTLE AND RECOGNIZE AND ACCOMODATE THE OTHER PERSON'S NEEDS. A PRIME EXAMPLE OF WHAT CAN BE ACCOMPLISHED THROUGH A PARTNERSHIP OF THIS TYPE IS THE AGREEMENT THAT WAS REACHED BETWEEN MID-WEST ELECTRIC AND THE MID-DAKOTA PROJECT. UNDER THAT AGREEMENT THE PROJECT WILL UTILIZE LOW-COST PICK-SLOAN PUMPING POWER FOR SIX MONTHS OF THE YEAR. A DEMONSTRATION OF COOPERATION AND RECOGNITION OF ANOTHER'S NEED WAS THE PRESENTATION OF SUPPORTIVE STATEMENTS AT A RECENT PUBLIC MEETING IN MILLER, SOUTH DAKOTA BY REPRESENTATIVES FROM TWO SEPARATE IRRIGATION PROJECTS FOR THE MID-DAKOTA PROJECT. LIKEWISE, MID-DAKOTA REPRESENTATIVES SUPPORTED THE LAKE ANDES-WAGNER MARTY II DEMONSTRATION PROJECT AND IRRIGATION PROJECT AT A MEETING IN WAGNER.

ON THE SUBJECT OF COST-SHARE, TO DATE, STATE AND LOCAL EXPENDITURES ON THE MID-DAKOTA HAVE EXCEEDED $450,000, OVER $89,000 HAS BEEN COLLECTED IN GOOD INTENTION FEES AND IT IS ANTICIPATED THAT $750,000 TO $1 MILLION WILL BE COLLECTED IN HOOK-UP FEES UPON THE AUTHORIZATION OF THE PROJECT. AS DRAFTED, THE AUTHORIZING LEGISLATION WILL ENABLE THE LOCAL PROJECT SPONSOR TO PROVIDE $26.66 MILLION, WHICH WHEN COMBINED WITH $5 MILLION OF STATE FUNDS AMOUNTS TO $31.66 MILLION OF THE TOTAL $108.4 MILLION PROJECT. PEOPLE IN THE PROJECT AREA ARE WILLING TO PAY A HIGHER COST FOR A HEALTHY, DEPENDABLE WATER SUPPLY AS EVIDENCED FROM THE ESTIMATED AVERAGE RURAL AND MUNICIPAL.

WE ANTICIPATE THAT FOR 7,500 GALLONS OF WATER A RURAL FARM WILL PAY AN AVERAGE OF $41.18 AND A MUNICIPAL RESIDENT WILL BE PAY AN AVERAGE OF $23.98. MUNICIPAL COUNTER PARTS IN:

- LOS ANGELES PAY $8.82
- SAN FRANCISCO PAY $5.92,
- CHICAGO PAY $12.24,
- NEW YORK PAY $9.53
- PHILADELPHIA PAY $15.00

AND RIGHT HERE IN WASHINGTON, D.C., $2.88 FOR A COMPARABLE AMOUNT OF WATER.

FOR THE RECORD I AM SUBMITTING THE PROJECT'S ENGINEERING REPORTS, RESOLUTIONS OF SUPPORT AND TESTIMONY FROM TOWN AND COUNTY OFFICIALS AND LOCAL RESIDENTS. SPEAKING FOR THE 30,000 PEOPLE THAT STAND TO BENEFIT FROM THE MID-DAKOTA PROJECT, WE BADLY NEED THIS SYSTEM NOT ONLY FOR HEALTH REASONS BUT ALSO FOR THE STABILIZATION AND GROWTH OF OUR RURAL ECONOMIES. WE NEED YOUR HELP IN MAKING THE MID-DAKOTA RURAL WATER SYSTEM A REALITY AND RESPECTFULLY URGE YOUR APPROVAL OF SENATE BILL S. 1765. THANK YOU.

Senator BRADLEY. Thank you very much, Ms. Hargens.
Dr. Carr.

STATEMENT OF JOHN S. CARR, MILLER, SD

Dr. CARR. Thank you, Senator Bradley.

Senator BRADLEY. If you can, let me just have the highlights, because we have one more panel. I would want to hear from them. But at the same time, you are here, so you take your—you came all the way from Miller, South Dakota, so you say whatever you want.

Dr. CARR. I respectfully submit the following testimony in support of S. 1765 to authorize planning and construction of Mid-Dakota rural water system.

It is my opinion that this water project would provide improved health conditions, as well as economic growth to the area supplied by Mid-Dakota. My name is Dr. John S. Carr. I am a chiropractic physician in Miller, and I am also serving as president of Miller City Council, and I am also serving as the president of the Industrial Development Group. I am a fourth generation Millerite and a father of three.

My main concern with our water is, of course, a health benefit. It is not a good source of water to be drinking. In fact, we have many health problems that we have to take care of due to our water. One of those is chronic diarrhea. This problem will not clear up until we remove the person from the water. Also we have chronic bladder infections that are caused from the water. And many of these cases will clear up the immediate time we get them away from the water.

We have high levels of sodium in our water. And, of course, this causes high blood pressure problems which in turn causes stress to the kidneys, the heart and causes us to have higher chances of stroke and heart disease. Iron and calcium are also problems that we have. These all are higher than the EPA requirements. And these cause stress to our heart and kidney as well.

Bacteria and nitrates are not a problem right now in Miller, but they are a problem in many of our rural areas with their wells. Especially in nitrates right now we do not have a severe problem, but they have been tested in many of the wells, and this is, of course, to the superficial shallow wells.

Because of the unpalatable nature—and when a I say unpalatable, I mean our odor, taste is horrible; you can smell it a mile away a lot of times, just our water is that bad. But due to this, many patients will not drink water. They will avoid the water all together. In fact, they will drink pop instead or coffee, and that becomes their main beverage, and this is not a very good source.

But, when we do have people drink water, and they drink the Miller water, this is also a problem.

In fact, if we would have them drink the normal requirements of water, which is 64 ounces, they would ingest about three pounds of minerals, or literally rocks, per year. And so this is a complicated matter that we do have.

There have been studies, and one of them by the United States Corps of Engineer, that ranked Miller's water and along with six other communities in the Mid-Dakota region as being poor, or bad,

I should say; the ranking is the worst we could get. And they did not recommend that this should be a drinkable water. And this is also added in my testimony.

Miller as an economic development is a very aggressive small town. There are not many towns that can compare to Miller as far as industrial development is concerned. And what we have looked at is we have tried to look at a whole picture of what we need for economic growth. So we try to not look at the—for this year, but for many future years to come. And one of our main concerns is, of course, our water supply.

One of our first industries that we successfully recruited into Miller was Angie's Ice Cream and frozen yoghurt, a food company, which you would not think would come into a town that has poor water. We did test our water, and we made minimal State and Federal requirements. But Angie's water has to be filtered in order to make the standard regulations.

This is an example of a filter that comes out of reverse osmosis from a rest home, and this is only at 24 hours. So it is pretty hideous.

In order for a small town like Miller to continue, if Mid-Dakota is not in the future, we will have to treat our own water. But this only answers our local problem of 2,000 people that we could treat our water successfully. It would definitely cause a financial burden on our community, but it would do nothing for the rural area, and they need the help just as much, if not more than we do.

So I urge you on behalf of Miller and the Mid-Dakota area to support the legislation for the Mid-Dakota rural water system.

Thank you.

[The prepared statement of Dr. Carr follows:]

CARR CHIROPRACTIC CLINIC

1718 DAKOTA AVE. S. HURON, SD 57350 352-5264
197 E. 3RD MILLER, SD 57362 853-2250

DR. E.W. CARR
DR. JOHN S. CARR
DR. LARRY NICKELSON
DR. WAYNE H. CARR
DR. JOSEPH N. CARR

June 14, 1990

The Honorable Bill Bradley, Chairman
Subcommittee on Water & Power

Re: Mid-Dakota Rural Water System

Dear Senator Bradley:

I respectfully submit the following testimony in support of Senate Bill S1765 to authorize planning and construction of the Mid-Dakota Rural Water System. It is my opinion that this water project would provide improved health conditions as well as economic growth to the area supplied by Mid-Dakota.

My name is Dr. John S. Carr. I am a Chiropractic Physician in Miller, South Dakota. I am also president of the Miller City Council and am presently serving as president of the Miller economic development corporation. I am a fourth generation resident of Miller and a father of three.

As a physician I am greatly concerned with the quality of life of the local area and with the quality of our drinking water. Water is an essential and major component of all life on earth. It forms the building blocks for cells and is the component for most of them. Man requires free water to maintain water balance. Even with maximum concentration of urine solutes, the water contained in the foods of a normal diet and the water produced by oxidation of food are inadequate to provide for urinary excretion of the end products of metabolism, for losses of water from the bowel and through vaporization from the respiratory tract and skin. Recommended daily ingestion of water is 64 oz.

Dorland's Illustrated Medical Dictionary defines water as an odorless, tasteless and colorless liquid. Miller's water and its

surrounding rural area's water does not fit into this definition. In fact due to its odor, taste and high amounts of minerals, the quality of our water creates a definite health problem. In my practice, I have treated many patients with water related disorders. Due to the high sulfate concentration (1177 mg/l) many people have suffered from chronic diarrhea. Until we removed our water from their diet this problem would not clear up. Chronic bladder infection is another example, remove our water source from these patients and many of these cases clear up within a few days.

High levels of sodium are also found in our water supply. Our sodium level is approximately 333 mg/l which is higher than the maximum limits recommended by the EPA. Ingesting high amounts of sodium every day causes elevation of blood pressure which in turn taxes our heart, kidneys and increases our chances for strokes and heart disease.

Iron and calcium are two other minerals that are above the recommended EPA limits. These heavy minerals not only cause an increased load for the kidneys but the liver as well.

At present bacteria and nitrates have not posed a problem in the city of Miller but according to a recent study of project area rural wells, 40% of those tested showed the presence of harmful bacteria. Being an agricultural area, we are at risk from future nitrate contamination of our shallow water supplies.

Because of the unpalatable nature of our water it discourages ingestion causing a health risk in itself. Many residents rely on a poor substitute such as carbonated beverages, coffee, etc. to replace their water supply. Without adequate ingestion of water, the entire body becomes stressed and less efficient. Yet if one would drink the recommended amount of Miller water per day (64 oz.) they would injest 3 lbs. 2 oz. of minerals or literally rocks per year. This is a vicious paradox.

According to the US Army Corps of Engineer in their summary report, Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, dated July, 1988, categorized the 23 community water systems included in Mid-Dakota project into 4 rankings. Ranking 1- good, ranking 2 - fair, ranking 3 - poor and ranking 4 - bad.

Miller fell into the ranking of 4 (bad) along with 6 other communities. Ranking 4 represents the following: "This water could have detrimental effect on the individual using it. This water supply should not be used as a source of potable water. The water does not meet one or more primary drinking water standards and/or has excessive amounts of sulfates, hardness or total dissolved solids above the upper maximum limit recommended for human consumption." Only one community was ranked 1 or good.

The community of Miller takes pride as being one of the most aggressive small towns in the state when it comes to economic development. We have looked not only at our present needs but of the needs of the future. Our immediate need is to diversify our economic base, to not rely on just one type of industry to hold our community together. Towns like Miller need a dependable supply of quality water for domestic and industrial use. It makes it very difficult to attract industries to a community whose water has offensive odors and suspended precipitates and causes corrosion of fixatures giving the impression that they are unclean. We cannot ask an industry or individuals to locate in our community while advising them not to drink the water.

The first industry Miller's new development corporation successfully recruited was Angie's Ice Cream and Frozen Yogurt, Inc. Angie's produces a value added product which takes raw agricultural ingredients from the state of South Dakota and ships approximately 90% of the finished products out of the state. Therefore, they are under strict FDA regulations when she crosses state lines with food products.

Before moving to Miller, Angies was located in an area which had treated Missouri River water served by WEB. Their first question and concerns to our industrial group was about the quality of water in our town. Our water met minimal state and federal regulations but Angie's water supply must be filtered to meet production standards. However, corrosion of their stainless steel equipment still exists.

Our small communities must market their high quality of life not only to attract industries but to retain current residents who

could go elsewhere. All the municipalities in central South Dakota are in the same situation, they need help in redeveloping their infrastructures and economics and the best place to start is with a high quality, dependable water supply like the Mid-Dakota Rural Water System.

If Mid-Dakota is not a reality, Miller in the foreseeable future will be required to build her own water treatment facility. This will heavily indebt our community, impeding its growth and do nothing for rural residents who also need a clean dependable water supply. At present Miller is not able to keep up with itswater needs as they stand. Therefore on behalf of Miller and all the residents of the Mid-Dakota area, I urge you to support legislation for authorization of the Mid-Dakota Rural Water System. Thank you.

Sincerely yours,

John S. Carr, D.C.

JSC/lf

Senator BRADLEY. Thank you very much.

Commissioner Underwood.

Mr. UNDERWOOD. Yes.

Senator BRADLEY. As I read the bill, it would permit the Secretary to provide all $100 million as a grant to the project sponsors. Do you agree with that reading of the bill?

Mr. UNDERWOOD. I agree that it provides basically that, because it provides for grants and for loans.

Senator BRADLEY. The bill would give the Secretary authority to give financial assistance to the project sponsors under the same rules that apply to FMHA water supply activities. What does that mean?

Mr. UNDERWOOD. There are some distinct differences here. My understanding of the Farmers Home Administration is that they allow for limits up to 50 percent of the project cost, whereas S. 1756 would allow for grants to exceed 75 percent of the eligible development cost.

Senator BRADLEY. Is there any other project you know where there is this authority?

Mr. UNDERWOOD. They had similar circumstances with the WEB rural water supply. There have been a couple that have gone to a similar type of financing arrangement.

Senator BRADLEY. Do you want this authority?

Mr. UNDERWOOD. I would like the problem solved in terms of providing safe and dependable rural water supplies. The problem with this bill is that we end up being just a cash register to run the money through. We really do not have any oversight in terms of the planning, design, et cetera, that I had talked about before, and that does present a problem for us.

Senator BRADLEY. So you basically say you do not want the authority unless you have some say?

Mr. UNDERWOOD. Exactly.

Senator BRADLEY. Which is the point you made in your testimony.

Mr. UNDERWOOD. Correct.

Senator BRADLEY. Did the Bureau have involvement in preparing this bill and the planning studies?

Mr. UNDERWOOD. I have staff members behind me; they will correct me, if I am wrong. We have looked at the planning studies done by a consultant. We have reviewed those, and they have been determined to be engineeringly feasible.

Senator BRADLEY. Have you done a cost/benefit analysis?

Mr. UNDERWOOD. No, we have not.

Senator BRADLEY. Have you looked at it, the measures of the Fish and Wildlife Coordination Act?

Mr. UNDERWOOD. Pardon me?

Senator BRADLEY. The Fish and Wildlife Coordination Act?

Mr. UNDERWOOD. No.

Senator BRADLEY. NEPA?

Mr. UNDERWOOD. No. That is some of the documentation that would have to be done.

Senator BRADLEY. Do you have any thought about what is the role of the Bureau in providing water to rural areas?

Mr. UNDERWOOD. I think this is, as I indicated to you, a major national problem; this is not just in the West, not just in the reclamation areas. This goes across the Nation as a whole. I think there has to be some kind of an assessment, a nationwide assessment, as to what type of role the Federal Government should play. What is appropriate Federal involvement?

Senator BRADLEY. And your suggestion in your opening comments was what? I know you said you have a tough dilemma, because you see this——

Mr. UNDERWOOD. I believe that the Bureau has the capability to help in this regard. We have the design capability and the know-how to provide for safe and dependable rural water supplies especially when you are looking at something on a scale like this. You are talking about 10 percent of the land area of South Dakota. It is not like a Farmers Home Administration loan, where you are really talking about a small system.

This system is more complicated than a small system financed under the Farmers Home Administration. It requires a substantial amount of engineering work.

Senator BRADLEY. So you are saying that this might even be an area where there should be new authorization?

Mr. UNDERWOOD. Yes, I believe that it should be looked at.

Senator BRADLEY. How would you describe the problem as being different from, you know, your normal Farmers Home operation?

Mr. UNDERWOOD. Well, in this particular case, we are looking at trying to comply with the Safe Drinking Water Act. You are looking at a much larger system than what you would be looking at in terms of FmHA. FmHA loans are generally just for small, isolated systems, whereas, in this case you are looking at providing a community-wide or an area-wide system, and a lot of economy can be obtained out of that.

Senator BRADLEY. But as the bill is drafted now, you do not support it or do support it?

Mr. UNDERWOOD. Well, we do not support it for these two reasons that I indicated to you: the planning and also the financing.

Senator BRADLEY. Okay. Let me ask Ms. Hargens, if I can, the pricing system is what is called declining block rates, right? And does that not mean that the more water a person uses, the less they pay for it?

Ms. HARGENS. Yes.

Senator BRADLEY. And is that consistent with what the legislation says is its commitment to conservation?

Ms. APGAR. Could I address that one?

Senator BRADLEY. Yes, sure.

Ms. APGAR. I am the executive director.

The declining block, water conservation in the rural areas, we are not going to be wasting the water in the rural area, because the cost of the water is substantially higher than in most areas of the country. So we do not anticipate a wastage of the water. In fact, we are trying to encourage water use out there for livestock and for homes. And we really do not anticipate any waste.

Senator BRADLEY. But it would be used for homes and for cattle basically?

Ms. APGAR. That is correct.

Senator BRADLEY. You know, when you think about the size and the cost of the system, and I am just going to throw this out, could you reduce the size and cost of the system, if you were to blend ground water or other local water with Missouri River water? I do not know the answer to that.

Ms. APGAR. You probably could, but the purpose of the rural water system is to—we are going to be using Missouri River water, which is a much higher quality that what we have right now. The ground water, as Dr. Carr had indicated, is contaminated. So we would be basically polluting our—what we have got.

Senator BRADLEY. I see. So in other words, the purpose of this is to get access to purer water. And the idea of mixing ground water would be mixing the impure with the pure.

Ms. APGAR. That is correct.

Senator BRADLEY. Do you think there's a Federal interest in providing water for livestock? Obviously, you do. Say, yes.

[Laughter.]

Senator BRADLEY. Okay, let me thank you very much for your testimony. And, unfortunately, there is the vote. So let me thank this panel.

We have two other witnesses, Dr. Sherwood Berg from Brookings, South Dakota, and David C. Campbell, who is with the National Wildlife Federation in Washington. Would each of them, please, take the table?

And let me say, as you are leaving, Mr. Underwood, that I think the Bureau of Reclamation distinguished itself today in this hearing, and it is good to be able to say that.

Mr. UNDERWOOD. Thank you very much, sir.

Senator BRADLEY. You were very helpful, and you came prepared, and you had good information and helpful suggestions.

To the last two witnesses, I apologize for being put under this kind of pressure. But literally I want you to say—your full statement will be put in the record. And, Mr. Berg, since you came all the way from Brookings, South Dakota, what are the three or four points that you would like the subcommittee to know today?

STATEMENT OF SHERWOOD O. BERG, CHAIRMAN, SOUTH DAKOTA CHAPTER, THE NATURE CONSERVANCY, ACCOMPANIED BY RUSSELL VAN HERRICK, VICE PRESIDENT

Mr. BERG. My name is Sherwood Berg. I am chairman of the South Dakota Chapter of the Nature Conservancy. And I am a volunteer, and I am the former president of South Dakota State University, the land grant institution in the State of South Dakota, located in Brookings. And I am a former dean of the Institute of Agriculture Forestry and Home Economics at the University of Minnesota.

And I have with me here Mr. Russell Van Herrick, who is the vice president of the Nature Conservancy and is in the Midwest regional field office located in Minneapolis.

Senator BRADLEY. Mr. Berg, I just want to tell you that in a few minutes there are going to be five buzzers, at which time this gavel goes down, and the hearing is over.

Mr. BERG. Well, we are here to affirm the Nature Conservancy's desire to work closely with this Committee and with the State of South Dakota as coordination goes forward for the further development of our water development resources, our human needs and the biological diversity in the State of South Dakota.

And we are a private nonprofit conservation organization with over 600,000 members here in the United States. And we have approximately 2,100 members in the two States of the Dakotas.

Senator BRADLEY. Not to push you, Mr. Berg, but just tell me what do you think of S. 2710 and S. 1765?

Mr. BERG. There are—as we have looked at that, we are particularly impressed with the enhancement proposals calling for a trust or other mechanism to fund the restoration and protection of the significant water and water-related biological resources in the State of Minnesota, or in the State of the South Dakota.

And in the testimony we have pointed out the various projects that we have undertaken. And working with the governor, Governor George Mickelson of the State of South Dakota, we have a heritage program that will help us identify the critical areas from the standpoint of the preservation of biological resources in the State.

And, therefore, we do endorse the trust concept that is embodied in this proposal, because we feel that this can accomplish some of the objectives that the organizations that are interested in these two projects have in mind.

And, furthermore, we would urge the Subcommittee to examine the mitigation and the enhancement alternatives to accompany these specific water projects. And we feel that that will give a cooperative and a comprehensive approach to identifying, to protecting, to managing and to restoring the biological building blocks that support the people, the health, the tourism economy, the agriculture stability and the quality of life in the State of South Dakota.

[The prepared statement of Mr. Berg follows:]

Testimony of Sherwood O. Berg, Chairman

South Dakota Chapter

of

The Nature Conservancy

before the

Subcommittee on Water & Power

of the

Committee on Energy and Natural Resources

of the

United States Senate

concerning

Senate Bills 1765 and 2710

June 19, 1990

Mr. Chairman and Members of the Committee:

My name is Sherwood Berg. I am the Chairman of the South Dakota Chapter of The Nature Conservancy. I am here to affirm The Nature Conservancy's desire to work closely with this committee, and with the State of South Dakota as we coordinate our water development projects, human needs, and the biological diversity of South Dakota. The long-term economic and cultural benefits of water projects must proceed hand-in-hand with the successful protection and restoration of the state's biological health, upon which our success, economically and politically, ultimately depends.

I want to urge this committee, in considering these projects, to look comprehensively at the affected aquatic resources of South Dakota, and to consider cooperative, creative enhancement measures beyond the direct mitigation of environmental impacts. Direct mitigation can alleviate immediate impacts but is often inadequate to reduce the long-term, diffuse, and widespread effects that accompany the increase in human activity and local populations fostered by successful water development projects. We see merit in the enhancement proposals calling for a trust or other mechanism to fund the restoration and protection of significant water-related biological resources in South Dakota.

The Nature Conservancy is a private nonprofit conservation organization with over 600,000 active members in the United States. Our mission is the preservation of natural diversity through the identification, protection, and management of rare species populations and natural communities. We work

toward this mission in close cooperation with state and federal agencies. In South Dakota, the Department of Game, Fish, and Parks and The Nature Conservancy have been effective partners.

The Nature Conservancy has staffed programs in all 50 states, including recently opened offices in Bismarck, North Dakota, and Sioux Falls, South Dakota. The Conservancy's South Dakota Chapter volunteers have been active in the state since 1962 and have been responsible for the protection of over 11,800 acres. Nationally, The Nature Conservancy has protected over 5.5 million acres since 1952.

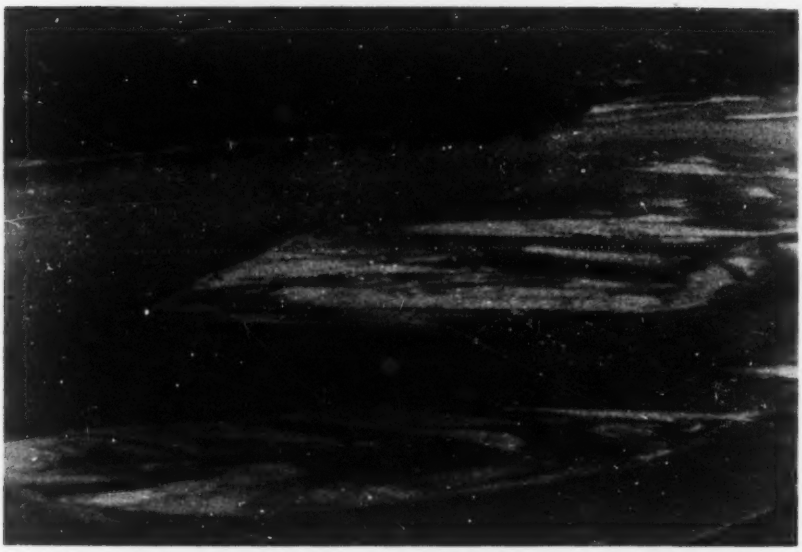
Our successes are only a beginning for what needs to be done to ensure that the nation's biotic richness is maintained for future generations. Pressure from an expanding U.S. population, continuing economic and agriculture development, and the growing use of natural resources continues to cause a decline in many species of animals and plants. These same forces that are at work nationally are also threatening the natural diversity of South Dakota. But this is not to say that the situation is hopeless or irreversible. South Dakota is still the home of great biotic richness and outstanding examples of natural landscapes that, with protection and proper management, can be restored.

Because water is life in semi-arid environments, The Nature Conservancy and the South Dakota Department of Game, Fish and Parks, have focused attention on wetland and aquatic resources. I would like to mention briefly some of the urgent and exciting opportunities for wetland protection in South Dakota.

1.) Eastern South Dakota was originally tallgrass prairie prior to European settlement, but it has since been largely converted to agricultural uses. A few areas, particularly along ridges formed by glacial activity, have never been cultivated and are refuges for many of South Dakota's rarest plants and animals. One such area, Crystal Springs, is a prairie wetland mosaic that The Nature Conservancy is jointly developing with another conservation organization, Ducks Unlimited.

Crystal Springs, Eastern South Dakota

2.) Central South Dakota was originally mixed-grass prairie in an area dominated by the Missouri and James Rivers. Many of the most significant wetlands are associated by these riverine systems. This area is home to The Nature Conservancy's 7,800 acre Ordway Prairie, one of the first prairies protected in the Midwest.



Unchannelized Missouri River

3.) Western South Dakota is the most arid portion of the state, but is still predominately covered by mixed-grass prairie. The Black Hills are a major topographic feature and are the home for many disjunct species of plants and animals whose nearest relatives are located in the Rocky Mountains. The riparian systems along streams in the Black Hills are increasingly impacted by development, and are essential to maintaining the natural diversity of the area.

Cascade Valley, Southern Black Hills

Owen's Creek, Northeast South Dakota

A course of action to protect the diversity of life in South Dakota and the United States is clear. If functioning examples of each ecosystem can be permanently protected and restored, most species associated with those habitats will be preserved. By making intelligent choices in the selection of which representative natural systems to protect, the habitat of most rare and endangered species can be included. Fortunately, the information for making these intelligent choices is largely available. Over the past 16 years The Nature Conservancy has worked cooperatively with state governments to develop Natural Heritage Inventories -- programs to determine what is rare in a state, where those elements of natural diversity occur, and how well they are doing at each site. Heritage Inventories have been established in all 50 states including South Dakota. Under the leadership of Governor George S. Mickelson

the South Dakota Heritage Program has become a permanent part of South Dakota state government. Heritage programs have the capability of producing priority site lists for a state that identify and rank the remaining natural habitat on its biological significance. These lists have increasingly become a shared priority list with state and federal government.

Just as our cooperation with state and federal agencies has resulted in a clear agenda of what areas should be protected, cooperation will also facilitate the actual task of protecting and restoring these biological corner stones. Protection will need to be achieved in harmony with existing economic activities to insure that protected areas can coexist with compatible land uses. Additional resources, both public and private, are needed to complete the protection and restoration activities. The Nature Conservancy is prepared to gather the private portion of the necessary funds, but an additional public commitment to the protection of biological diversity in South Dakota is also needed. One mechanism to provide stable, permanent funding is the establishment of a Wetlands and Natural Heritage Trust as part of water project authorization. The income from such a trust could be used in conjunction with privately raised funds to carry out the highest priority biological diversity protection and restoration projects in our state. Accordingly, The Nature Conservancy endorses the trust concept embodied in this proposal which can accomplish these objectives.

In South Dakota as in many other states, the biological health of our natural resource base requires that we examine the needs of rare and threatened plant and animal communities, especially those dependant on healthy aquatic ecosystems. As the Water and Power Subcommittee examines mitigation and

enhancement alternatives to accompany water projects, please consider a cooperative and comprehensive approach to identifying, protecting, managing, and restoring the biological building blocks that support our people, health, tourism economy, agricultural stability, and quality of life.

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The Nature Conservancy

Midwest Regional Office
1313 Fifth Street S.E., Minneapolis, Minnesota 55414
(612) 379-2207

BACKGROUND INFORMATION
1990

The Nature Conservancy is an international, membership organization committed to the global preservation of natural diversity. Its mission is to find, protect, and maintain the best examples of communities, ecosystems, and endangered species in the natural world. Operating in the United States for 39 years, the Conservancy also has a Latin American Program that focuses on conservation of living resources outside the United States.

The Conservancy works by:

- o Identifying lands that shelter the best examples of natural communities and species; determining what is truly rare and where it exists.
- o Protecting habitats and natural systems through acquisition by gift or purchase; assisting government and other conservation organizations in their land preservation efforts.
- o Managing more than 1,000 preserves using staff and volunteer land stewards; encouraging compatible use of the sanctuaries by researchers, students, and the public.

ORGANIZATION

The Nature Conservancy was incorporated in 1951 for scientific and educational purposes. It is a nonprofit, tax-exempt corporation under section 501(c)3 of the Internal Revenue Code and is a publicly supported organization as defined in Sections 170(b)(1)(vi) and 509(a). The Conservancy's activities are made possible through individual and corporate contributions, foundation grants, membership dues, and recovery of expenses.

The Nature Conservancy has an open membership policy and an elected board of governors. In addition to its volunteers, the Conservancy employs over 1,000 professional staff members with backgrounds ranging from systems ecology, biology, and forestry to real estate, business, and law.

The Conservancy's national headquarters are located in metropolitan Washington, D.C., with regional offices based in San Francisco, Minneapolis, Boston, and Chapel Hill, N.C. There are professionally staffed offices for all 50 states and an International Program office at the national headquarters.

IDENTIFICATION

State Natural Heritage Inventory Programs, usually administered by a state agency, are ongoing inventories that identify rare natural elements and their locations within a particular state. Researchers use inventory techniques and assessment methods developed by The Nature Conservancy. The scientific information gathered by the inventory indicates the relative rarity of plant and animal species, aquatic and plant communities, and other significant ecological features.

-over-

The systematic inventory process also indicates which natural elements are currently protected and which are not. Consequently, the data can be useful in guiding development siting decisions, in resource planning, and in myriad conservation initiatives.

PROTECTION

A protection project is undertaken based on:

- a natural heritage program inventory that identifies a specific site sheltering critically threatened plant or animal species/communities,
- or an acquisition strategy designed to enlarge an existing sanctuary according to priorities indicated by the heritage program.

The project is first reviewed by the Conservancy's senior management. If it clearly supports the Conservancy's mission, a purchase option is negotiated. Upon approval, money for purchase is made available from the Conservancy's revolving loan fund, the Land Preservation Fund. The state chapter or special committee then raises funds to repay the Conservancy so that the money can be reinvested in other protection projects.

MANAGEMENT AND STEWARDSHIP

The Conservancy's staff and volunteers maintain more than 1,000 preserves, the largest private nature sanctuary system in the world. These preserves, ranging in size from less than one acre to more than 50,000 acres, are managed for the protection and enhancement of ecosystems and of the rare or endangered species they shelter. Actual management is carried out by volunteer committees and professional staff after a long-term management plan has identified stewardship needs. Most Conservancy preserves are open for educational uses and passive recreation such as hiking, nature study, bird-watching, photography.

STATISTICS	January, 1990
ACRES SAVED SINCE 1953:	5,443,225
ACRES MANAGED:	1,337,858
LOCATION OF PROJECTS:	50 states, Canada, Latin America, the Caribbean
MEMBERSHIP:	550,000+
CORPORATE ASSOCIATES:	304
SANCTUARIES UNDER CONSERVANCY MANAGEMENT: (Each sanctuary may be composed of a number of land conservation projects owned in fee or protected by conservation easements.)	1,631
NATURAL HERITAGE INVENTORY PROGRAMS AND CONSERVATION DATA CENTERS:	76

Senator BRADLEY. Thank you very much.
Dr. Campbell.

STATEMENT OF DR. DAVID C. CAMPBELL, RESOURCES ECONOMIST, WATER RESOURCES PROGRAM, NATIONAL WILDLIFE FEDERATION

Dr. CAMPBELL. The sponsors are asking Congress to authorize and fund at full Federal expense this part of the irrigation project.

Senator BRADLEY. Excuse me, but, Mr. Berg, do you support S. 2710 and S. 1765?

Mr. BERG. We have endorsed the enhancement proposals that go along with that.

Senator BRADLEY. But the bills themselves?

Mr. BERG. We are not—we feel that we are not experts in the field of irrigation. We are looking at the other aspects.

Senator BRADLEY. Okay, all right.

Dr. Campbell.

Dr. CAMPBELL. We oppose the demonstration project, and we especially oppose the full Federal funding of the demonstration project. If you think that you just spend $19 million just to construct the facilities to cause a selenium problem in order to research it. It just does not make sense. The stated objectives of the demonstration program could be achieved at much lower cost and fewer risks by research programs that are not tied to this infeasible project.

Selenium from irrigation projects is causing enough contamination nationwide. We do not have to devise and finance additional experiments in environmental degradation. I think there are 600 existing sites where research could be conducted. And we do not have to create a 601.

Senator BRADLEY. So you oppose the bill and the demonstration project?

Dr. CAMPBELL. Right. And in terms of the sweetener, the wetlands creation and enhancement, it is just a dangerous area and a risky area to go and apply more water to—to attract—maybe attract birds that would get contaminated with selenium.

The 9-year demonstration project is not going to help the Yankton Sioux solve their immediate problems at all.

In regard to the Mid-Dakota——

Senator BRADLEY. 30 seconds, 30 seconds.

Dr. CAMPBELL [continuing]. The Mid-Dakota system, I think, we agree in this case with the Bureau of Reclamation that the non-Federal share of the construction cost should be, at least, 25 percent, at least as a way of beginning a national policy towards rural water systems.

In addition, we think that the Oahe Unit should be deauthorized and further study of the CENDAK Unit, the Mid-Dakota project would use the outlets from the——

Senator BRADLEY. Mr. Campbell, what do you say to Mr. Holzbauer, who made I thought a compelling case for people who have been on the land a long while?

Dr. CAMPBELL. Well, this project is such a small part of the whole farming industry in South Dakota, 40,000 acres out of 20 million,

that it is just not going to be the salvation of the economy of the State. There has been 2 million acres just taken out of production in the conservation reserve. I mean, it is sympathetic; I wish I had his enthusiasm. But it is just uneconomic and environmentally risky.

[The prepared statement of Dr. Campbell follows:]

Working for the Nature of Tomorrow.

NATIONAL WILDLIFE FEDERATION

1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

Statement of
David C. Campbell, Ph.D.
Resources Economist

regarding the
Lake Andes-Wagner and Marty II Unit of the
Pick-Sloan Missouri Basin Program, **S. 2710**, and the
Mid-Dakota Rural Water System, S. 1765

before the
Subcommittee on Water and Power
of the
Committee on Energy and Natural Resources

United States Senate

June 19, 1990

This statement presents the views of National Wildlife Federation on the proposed Lake Andes-Wagner and Marty II Units and the Mid-Dakota Rural Water Project in South Dakota. The Federation is the nation's largest conservation organization with over 5.8 million members and supporters and 51 state affiliate organizations, including the South Dakota Wildlife Federation.

This is the third time within the past three years that this Subcommittee has held hearings on the proposed Lake Andes-Wagner Project. The facts that make this project infeasible have not changed. The National Wildlife Federation continues to oppose the project itself and the notion of an unpaid debt to South Dakota as the rationale for its authorization.

The presence of selenium within and adjacent to the proposed service area of the Lake Andes-Wagner Unit and the Marty II Unit is one of the several reasons that the Administration has not supported and this Committee has not authorized the project. Selenium, even at low concentrations, is exceedingly toxic to waterfowl. It is an element that increases in concentration as it moves up the food chain. Selenium has been found in least terns and piping plovers,

two endangered species found in the project area. No affordable methods exist to dispose of, to fix, or to decompose selenium.

This version of the bill attempts to turn the liabilities of selenium into an asset as the rationale for authorizing the project! The sponsors are asking Congress to authorize and fund part of the irrigation project as a demonstration program involving selenium. In our opinion, the construction and operation of a 5,000 acre "demonstration" project at full federal expense is no better than the full 45,000 acre irrigation project. The stated objectives of the demonstration program could be achieved at lower cost and fewer risks by research programs that are not tied to an infeasible irrigation project.

The first objective of the demonstration program is to develop irrigation and drainage requirements, and estimates of drainage return flow quantity and quality, with respect to the glacial till soils found in the Lake Andes-Wagner area. The proponents suggest that this information might have application to other areas of the U.S. Any information garnered from this area would have little application elsewhere because there are few irrigable glacial till soils in the U.S: i.e. the Oakes area in North Dakota and another small area on the Canadian border.

The demonstration program also is intended to develop and demonstrate techniques that will prevent or ameliorate the degradation of water quality caused by irrigation runoff of selenium, agricultural chemicals, and other salts. There is no clamor from the scientific community for expensive field tests of selenium in irrigated glacial till soils. The $20 million cost of the project is larger than the total selenium research program outside of the San Joaquin Valley Drainage Project in California. The research design has been prepared by project sponsors and the Bureau of Reclamation, not by selenium scientists. Moreover, stirring up selenium would be risky. Because glacial till soils are tight, irrigation run-off would have to be drained with tiles to ponds where attracted waterfowl could be contaminated. Selenium from irrigation projects is already causing enough contamination: we don't have to devise and finance additional experiments in environmental degradation.

The demonstration program would include a sweetener, the investigation and demonstration of the potential for development and enhancement of wetlands and fish and wildlife through the

application of project water. This portion of the demonstration program has several faults. First of all, the area has few former wetland sites to restore. Second, if selenium enters restored or newly created wetlands, the concentrations are nearly impossible to remove, as has been discovered at the Kesterson National Wildlife Refuge. Third, the cost of pumping water uphill from the Missouri River is expensive. Instead, selective wetlands could be restored much more cheaply by plugging the drainage ditches constructed in the past by farmers to drain wetlands. The final reason that conservationists will not be induced to support the project, with a wetlands enhancement provision in the bill, is that wetlands could be restored or created at lower cost and with fewer risks at other areas in South Dakota.

The fourth objective of the demonstration program is to demonstrate the suitability of glacial till soils for irrigated crop production. Again, there are few glacial till soils that could benefit from any information or analysis obtained by irrigating land in the Lake Andes-Wagner Unit. Moreover, there are at least six private farms in the area that irrigate their land and grow crops that are not designated as surplus by the Secretary of Agriculture. One of the farmers in this room has earned high returns by growing potatoes on irrigated lands. The operators of these six irrigation units can share their successes and problems with their neighbours. In spite of the narrow success in irrigating these units, landowners voted down a bond issue to build the project.

We urge the Committee to resist this poorly disguised attempt to justify this unwise irrigation project as scientific research.

The effects of irrigation return flows and remedies for the probable adverse effects are just as speculative for the total project as for the demonstration project. The project sponsors have agreed to set up a sinking fund to construct drainage facilities beginning no earlier than five years after the first water is delivered. A method and a place have not been planned to deal with contaminated drainage water. The law that authorized the San Luis Unit in California 25 years ago also required assurance that drainage outlets would be built. The drains didn't work as planned, resulting in severe losses to waterfowl at Kesterson National Wildlife Refuge. Extensive and expensive studies have found few solutions to the problem. The proposal to plant eucalyptus trees in the Central Valley of California to absorb salts will alleviate a small portion of

the problem, but these trees will not survive a South Dakota winter. The *ex-poste* approach to dealing with the potential effects of drainage, as embodied in the bill, is dangerous.

Even without the selenium problem, the Lake Andes-Wagner Unit continues to have serious public policy and economic feasibility deficiencies. The $180 million cost of the project amounts to nearly $4,000 per acre--but would increase the land value by only $500 per acre. Because nearly all the costs will be borne by taxpayers, the subsidy amounts to one million dollars per farmer. The project is promoted as an impetus to economic development in South Dakota. This amount of cropland in the project is insignificant compared to the 19.6 million acres of cropland in the State and the two million acres taken out of production in the Conservation Reserve Program. The additional income from the increased crop output on 45,000 acres owned by fewer than 173 farmers would hardly be noticed in the total farm economy.

The Department of the Interior has not approved the project, nor the methodology used to puff up the claimed benefits. The Bureau of Reclamation's "customized procedures" use crop prices higher than those issued by the U.S. Department of Agriculture. Prices of most farm commodities have not risen at the rate that the general level of prices has risen. The Bureau's method pretends that they did rise at the same rate as the Consumer Price Index. This self-serving assumption attempts to hide the fact that the project cannot be justified on economic analysis.

Section 2(e) of the bill proposes to reduce the impact of inconsistent Bureau and USDA programs with respect to surplus crops by limiting the amount of farm subsidies to the crop acreage base and farm program payment yield established for the crop year immediately prior to the delivery of project water. This compromise may prevent individual farmers from "double dipping" in two subsidy programs, but the investment of Federal funds in the project will still deliver subsidized irrigation water to boost production of crops that are frequently, if not chronically, in surplus.

The Mid-Dakota Rural Water System Act would authorize the planning and construction of a rural water treatment plant and a system to distribute water east from the Oahe Reservoir to rural and small town residents in ten counties. Approximately 15% of the one hundred million dollar cost of the project would be paid for by

project beneficiaries. The Federation supports the authorization of the system if the following measures are included in the authorizing statute.

- The Bureau of Reclamation and the project sponsors should prepare and submit a final Environmental Impact Statement. This document should lie before the Congress for at least 90 days before the inititation of land acquisition or construction.

- The indexing of the appropriations ceiling in section 2 of the bill should be limited to uncompleted portions of the project.

- Language should be added to section 3 of the bill that spells out specific measures to be included in the water conservation program required by the bill.

- The non-Federal share of construction costs should be at least 25% of the cost (in effective, not nominal, dollars at the current discount rate as determined by Sec. 80 of P.L. 93-251).

- Both the Oahe Unit and further study of the substitute CENDAK Unit should be deauthorized. The Mid-Dakota System will make both of these projects less practical. It will use the outlets originally planned for the Oahe Unit of the Pick-Sloan Missouri River Basin Program.

Some of the proponents of these two bills claim that they would constitute repayment for some unspecified economic losses incurred in the construction and operation of Federal dams on the Missouri River. The Federal government paid the going market price to owners of flooded lands. The value of the power subsidies is worth over $30 million a year to South Dakota. Three non-Federal irrigation projects have been integrated in the Pick-Sloan Program at at a cost to Federal taxpayers of over one hundred million dollars. In addition, the highly-subsidized WEB rural water development project is under construction. If there were debt, it has been extinguished.

We once again urge the Subcommittee to close the ledger on the Pick-Sloan account in the State so that Federal and State water resources plans in South Dakota can be judged on their individual merits and not on the basis of repaying an unquantified political debt of dubious validity.

Senator BRADLEY. I thank you for your testimony. I apologize for the speed with which we have had to end this hearing. I thank all the witnesses, particularly, those who came all the way from South Dakota to offer your testimony. And I think that it has been, from my standpoint, a very helpful and enlightening two hours.

Thank you very much. The hearing is adjourned.

[Whereupon, at 12:10 p.m., the hearing was adjourned

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

SUPER 8 MOTEL — WAGNER

West Highway 46 • Box 881 • Wagner SD 57380 • 605 384 5464

To the Senate and House Subcommittees on Water and Power;

I am writing this statement in great support for the Lake Andes-Wagner/Marty II Irrigation Projects.

When you live in a rural farming community, where so much of the revenue of business is farm oriented, one tends to support and get behind quality projects like this. The success and failure of small town, as well as, family farm America is at stake every day. The people of the area enjoy the quality of life and atmosphere of small towns. This irrigation project would be so beneficial for this part of the state of South Dakota, while also helping small towns maintain the hopes and dreams of its citizens. For if the farming communities disappear, we loose an entire way of life. This is why I am writing a letter of great support for the Lake Andes-Wagner/Marty II Irrigation Projects. I strongly feel that the success and continued quality of life for this area can only be a positive and growing factor, if this irrigation project is approved. If this area is to survive and remain healthy, we need something to generate a "positive". Thank you for your time.

Jeff Juffer, Manager

Super 8 Motel

STATEMENT OF

DAN SVATOS

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

I am Dan Svatos, farmer, and Secretary for Lake Andes-Wagner Water Systems, Inc.. I urge your support and authorization of Lake Andes-Wagner/Marty II and the Demonstration Program. I have irrigated with Missouri river water for some 22 years and have seen the benefits of being able to stabilize my feed base for my livestock enterprises in a drought year. I have also irrigated specialty crops, such as alfalfa and potatoes and feel encouraged to continue to irrigate these specialty crops.

Some may say, why build an irrigation project to produce more surplus crops such as corn? My answer to this is, with irrigation one is not limited to producing just corn; there are other crops such as potatoes, sweet corn, edible beans and the like that would be used to fill the ever growing demand for food. Also, the area in which these projects are to be constructed relies heavily upon livestock (cattle, hogs) as its mainstay; therefore the production of corn would be used entirely within this area as livestock feed.

If these projects are constructed there are processing companies that process, potatoes, sweet corn and edible beans that are ready financially to build processing plants in this area immediately. Without the irrigation to guarantee them a stable supply of raw product they cannot build processing plants in this area.

With irrigation comes increased benefits for wildlife. They to are insured the wetlands and feed base needed to support their production by the means of irrigation.

Lake Andes-Wagner/Marty II have worked extensively with all branches of local, State and Federal Government to make this project environmentally sound and as feasible as possible. We

as project sponsors want this project to be as safe as possible for the environment.

These projects for irrigation were promised to the State of South Dakota through the Pick-Sloan Plan during construction of the Missouri River Dams. The people of the Upper Missouri Basin gave a lot to receive nothing in return for irrigation projects. It comes to mind how my grandfather lost all his farm to the construction of the Fort Randall Dam and had to move and acquire land of lesser quality. He always wanted to irrigate but had to do so at his own expense. That is a lot to give for nothing received but only promised.

With the construction of these projects this would help stop the out migration of our children out of State. By giving them job opportunities so desperately needed for them to be able to stay in State. It would also insure a future in production agriculture for those who want to stay and be involved.

In conclusion, it is imperative that Lake Andes-Wagner/Marty II and the Demonstration Program be authorized for construction to help stabilize South Dakota and the area.

STATEMENT OF

MARK WIECHMANN

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

To the Senate and House Subcommittees;
I want to thank the subcommittee for holding the hearings on S. 2710 and H.R. 5012.

My name is Mark Wiechmann, my wife and I own and operate a farm in the Lake Andes Wagner Project area.

As operator of a family size farm I want to state my enthusiastic support for the Lake Andes-Wagner/Marty II Irrigation Units and Demonstration Program. It is my belief that completion of these units would be of great help in making our farms and towns viable and contribute to the nations economy.

I urge the passage of S. 2710 and H.R. 5012.

STATEMENT OF

JOHN UECKER

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

Mr. Chairman;
My name is John Uecker. I live three miles north and a half mile west of Wagner, South Dakota with my wife and six daughters.

I fully support the authorizing legislation for the Lake Andes-Wagner/ Marty II Units and Demonstration Program.

I am an average size farmer with above average size debt with a below average size income.

We operate a diversified farm; we raise hogs, cattle, corn, wheat, milo, oats, soybeans, alfalfa and I still milk a cow morning and night by hand for use in the house.

About ten years ago I first became involved with the Lake Andes, Wagner Irrigation District, because of our declining farm economy and dry weather.

We have only two (2) resources, one is our youth who have to leave the State to get a good job and the other is water and everyone else wants that!
What are we going to do to improve our economy?

In farming the longer you wait to pay a debt the harder it is to pay it, as a matter of fact you sometimes think you don't owe it anymore. That is what happened to Pick-Sloan and it is time for the U.S. Government to start paying the Pick-Sloan debt.

Thank you for considering Lake Andes-Wagner/Marty II.

STATEMENT OF

CHARLES EITEMILLER

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

My name is Chuck Eitemiller and a member of the Board of Directors of the Lake Andes Wagner Irrigation District. I am a farmer, cattle feeder and also have a cow herd.

I appreciate this opportunity to testify and show my support for the Lake Andes Wagner/Marty II Irrigation Units and the Demonstration Program.

I share the environmental concerns that you have about the projects. We all have concerns about it. I would like to stress the point that we care very much about the environment, our quality of life and in general doing something responsible.

Locally, it is very important to authorize the entire project based on positive results from the Demonstration effort. We cannot afford to go through all these same planning expenses again.

It will not cost Congress any money to authorize the Irrigation Units now based on the results of the Demonstration study but if it is not authorized it would be a great local expense if the study results prove positive.

On behalf of the Lake Andes Wagner Irrigation District and myself we want to thank you for hearing our statement.

STATEMENT OF

KENNETH DVORAK

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

My name is Kenneth Dvorak, lifetime resident of this area.

I am now semi-retired, having farmed and ranched in this vicinty all my life, well knowing the hazards of drought and knowing the meaning to the future and impact of this area.

It seems such a shame where a community such as this has to continue to try and survive, watching our youth leaving the farms and the Indian people living the poverty stricken life style, with no other goal or pride other than waiting for the Government checks.

Please, someone running our government surely should have enough foresight to know why our country and the people living in it are erroding.

We have the resources in this area to change this tragic situation, if only given a chance.

Gentleman, I urge you, please authorize this ever so important project.

It is very essential to authorize the entire program in one package surely realizing if the Demonstration Program proved hazardous it would not continue.

The time element is getting crucial - the landowners are losing hope - they have invested too many dollars and waited too long.

I'm hoping you act on this matter positively.

Kenneth Dvorak

Kenneth Dvorak

STATEMENT OF

ERNIE BURES, JR.

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

35-872 0 - 90 - 9

Mr. Chairman;
My name is Ernie R. Bures, Jr., a director on the LAWWSI board and local farmer in the proposed irrigation project, in the Lake Andes, Wagner and Marty area.

I support the project and the establishing of irrigation in our area not only for the farmers but for our community and local economy and the future of our young people who have no reason to remain in their hometown. Land and people need water, and without a dependable water source for both, our existence is doubtful.

We as a group are willing to go to great lengths, and have gone to great lengths to get our project. We are willing to first prove ourselves with the Demonstration Program but we also need full authorization to keep our local support and drive going to reach the final goal of irrigation development.

Farming in the next century will bring about many new problems and demands for the production of food locally and world wide. In our area irrigation will be the tool to help us fill needs of farming and survival of our rural community for generations to come.

I would hope you will give this project a positive review and I urge you to authorize both the Demonstration Program and the full proposed irrigation project based on a favorable result on the Research Program.

Chamber of Commerce
LAKE ANDES, S. DAK. 57356
BOX 683
June 11, 1990

LAKE ANDES-WAGNER IRRIGATION PROJECT
WAGNER, SD 57380

Dear Mr. Holzbauer:

The Lake Andes Community Club fully supports your efforts to secure authorization and funding of the demonstration project and the Lake Andes-Wagner/MartyII Irrigation Project in its entirety.

The demonstration project is a very worthy research program for all irrigators in our area and other areas of the country. Our economy in Charles Mix Co., SD isdependant on agriculture. Irrigation development can supplement and stabilize this economy.

The Lake Andes Community is also very interested in any of the benefits to area recreational facilities and wildlife production areas as a result of the demonstration project.

Good luck in your efforts for obtaining authorization and funding. Please call on me if the Lake Andes Community Club can be of any assistance in your endeavors.

Sincerely,

Joseph L. Schultz

JOSEPH L. SCHULTZ
Chairman of Lake Andes Community Club

WAGNER ROTARY CLUB

Resolution of Support

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT AND DEVELOPMENT OF A RESEARCH DEMONSTRATION PROGRAM.

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Projects (the Projects) are proposed irrigation projects in Charles Mix County, South Dakota; and

WHEREAS, the Projects will irrigate approximately 48,000 acres in South Dakota; and

WHEREAS, the Projects would stabilize agricultural production in the area, provide new employment opportunities, and encourage the development of agricultural processing plants; and

WHEREAS, the Projects represent partial fulfillment of the Pick-Sloan program; and

WHEREAS, development of a 5,000 acre Research Demonstration Program will provide information for South Dakota and the Western States on sub-surface drainage of glacial till soils and the affects of irrigation on seleniferous soils; and

WHEREAS, the Wagner Rotary Club supports the development of environmentally sound water projects;

THEREFORE BE IT RESOLVED; that the Wagner Rotary Club urges the Congress of the United States to authorize the Lake Andes-Wagner/Marty II Irrigation Project and to develop a Research Demonstration Program.

Dated this 13th day of June, 1990.

Wagner Rotary Club

Duane Rowland
Signature

President
Title

OFFICE OF
CHARLES MIX COUNTY AUDITOR
COURTHOUSE • P.O. BOX 490
LAKE ANDES, SOUTH DAKOTA 57356

May 21, 1990

We, The Board of Commissioners of Charles Mix County, South Dakota, Do Hereby resolve to support the United States Bureau of Reclamation's decision to support a proposed research program to determine if irrigation on the Lake Andes-Wagner/Marty II Project area's glacial till soil will cause water quality problems.

This research could be an opportunity to use technology gained here in Charles Mix County, South Dakota to also benefit other parts of the Country, particularly Western States with glacial till soil and selenium.

In addition to irrigation research, an added benefit of the research program would be the potential for wetland and wildlife development in Charles Mix County. Water from the demonstration research project could possibly be used to elevate water levels in the south lake of Lake Andes and Red Lake.

This irrigation project would benefit the overall economy of Charles Mix County and the State of South Dakota.

Bruce Bakken, Chairman

Jack Soulek, Commissioner

Heman Peters, Commissioner

Attest:
Norman E. Cihak, Auditor
Charles Mix County

Charles Mix Electric Association, Inc.

June 11, 1990

The Honorable Bill Bradley
United States Senate
Washington, DC 20510

Dear Senator Bradley:

Charles Mix Electric Association, Inc. is a rural electric distribution cooperative formed to provide electric service to rural Charles Mix County.

We at Charles Mix Electric have always been a strong supporter of the Lake Andes Wagner/Marty II Project. This project represents more to the area than just an irrigation project; it is a chance for community and economic development.

Let me state for the record that Charles Mix Electric Association Inc. is in full support of the Lake Andes Wagner/Marty II irrigation project, contingent upon the results of the research project.

Sincerely,

CHARLES MIX ELECTRIC ASSOCIATION, INC.

Mark W Mengenhauser

Mark W. Mengenhauser
Manager

MWM:sjf

440 Lake Street • P.O. Box 10 • Lake Andes, South Dakota 57356 • (605) 487-7321

COMMERCIAL STATE BANK
P.O. BOX 220 • PHONE 605-384-3646
WAGNER, SOUTH DAKOTA 57380-0220

June 14, 1990

Senator Bill Bradley
Chairman of the Enery Sub-
Committee on Water and Power
Capitol Building
Washington, D.C.

Re: Lake Andes-Wagner-Marty II Irrigation
Project and Research Demonstration

Dear Senator Bradley:

This is in reference to the above Project and Demonstration in which we are all greatly concerned.

In order to provide a better way of life for all, I feel there is a great local need in our community for the above Project and Demonstration.

The Lake Andes-Wagner Irrigation District has addressed all concerns which have been presented to them, such as economical, environmental, and social. The Research Demonstration would provide knowledge on soil impact in our Region for our future agricultural needs.

It is my understanding, that a Hearing is scheduled for June 19th in Washington, D.C., in regards to the above project. Please give this Project and Demonstration your utmost consideration for all concerned.

Sincerely,

D. R. Juffer
PRESIDENT

DRJ/bjh

FARMERS COOPERATIVE ASSOCIATION
P. O. BOX 150
WAGNER, SOUTH DAKOTA 57380

June 14, 1990

RE: Lake Andes-Wagner/Marty II Irrigation Project

To Whom this may Concern

This project will improve this area in many ways. The area that concerns us most is the future of our economy, Agriculture is the base and everything else builds from it.

With this in mind the Farmers Cooperative Ass'n of Wagner, S. Dak. fully supports the Irrigation Project and urges Congressional support in its favor.

Sincerely

Albert Kerr

Albert Kerr
General Manager

KENT
Pirner Farm Service
106 Railroad St. E. Box 38
Wagner, SD 57380 Phone (605) 384-5736

Dedicated to the Same Ol' Grind

To the Senate and House Subcommittee;
As the owner of an agri-business located in the center of the Lake Andes-Wagner/Marty II proposed Irrigation Units; we want to express our full support for the authorization of this important Federal Project and the Demonstration Program.

We understand it is very important to move forward immediately with the Demonstration Program so that irrigation concerns can be studied and factual answers can be found.

The local people have a large investment, from years of planning the Lake Andes-Wagner/Marty II Units and its time we recieve some positive action from Congress so that some improvements can be made in restoring rural America.

The farmers, small town business, and the Yankton Sioux Tribe need your help and the needed authorization would be the first big step.

Al Pirner, Owner

Al Pirner

Wagner Building & Supply Company
P.O. BOX 667 · WEST HWY. 46 · WAGNER, SOUTH DAKOTA 57380 · PHONE 384-3655

June 13, 1990

Lake Andes/Wagner/Marty II Irrigation Project
Wagner
South Dakota 57380

Gentlemen:

This letter will serve as our approval for the Lake Andes/ Wagner/Marty II Irrigation Project.

We feel that this project will help stabalize the economy in our community which includes the towns of Wagner, Lake Andes and Marty.

We feel that by getting this project in operation, it would help to bring new industries into our areas thus providing jobs for local people and possibly drawing new residents.

Thank you.

Yours very truly,

Jeff Doom

Jeff Doom, Vice President
Wagner Building & Supply Co. Inc.

STATEMENT OF

MARC GOLDHAMMER ON BEHALF

OF THE LAKE ANDES WAGNER WATER SYSTEMS, INC.

REGARDING S. 2710

LAKE ANDES WAGNER/MARTY II UNITS

PICK-SLOAN MISSOURI BASIN PROGRAM

before the

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THE HONORABLE BILL BRADLEY, CHAIRMAN

JUNE 19, 1990

LAKE ANDES-WAGNER WATER SYSTEMS, INCORPORATED
LAKE ANDES-WAGNER IRRIGATION PROJECT DEVELOPMENT

P.O. BOX 818
WAGNER, S.D. 57380-0818
PHONE: 605-384-3689

On behalf of the project sponsors for the Lake Andes-Wagner/ Marty II Irrigation Units and Demonstration Program; I want to express my total support and admiration for the planned Irrigation Units and the Plan of Study developed for the Demonstration Program.

It is a matter of record regarding the many years of hardwork and expense incurred by the local people (Indian and non-Indian) seeking Federal Pick-Sloan assistance. Thru out the years many different proposals have been considered, but the Lake Andes-Wagner/Marty II Irrigation Units and Demonstration Program has been fine tuned to the point that it truly is the number one BOR project in line for your consideration.

The Lake Andes-Wagner Unit is 45,000 acres and Marty II 3,000 acres (all Indian owned) of the best irrigable lands available in the area.

I cannot say enough about the benefits in this brief statement, but I want to assure the subcommittee that the benefits of stabilizing the family farm, crop diversification, made possible by irrigation, and the new jobs from expanded business and new industry are all very real dollars and cents benefits to the local people, furthermore the Yankton Sioux Tribe and the leaders of the area are depending on the Water & Power subcommittee to approve authorization for the Lake Andes-Wagner/Marty II Irrigation Units and Demonstration Program to improve economic conditions of the area. I urge the subcommittee to do everything possible to support and approve S. 2710.

S. 2710 also includes a section on the proposed Demonstration Program. We have the shelves full of studies, but as we learn and work with the development it is imperative we answer the question on water movement in glacial till soils, which is related to the subsurface drainage issue and incorporate a very extensive water quality monitoring program to provide the data needed concerning selenium and other elements.

We know of no other way than to fully support the Demonstration Program using Missouri River water and develop actual irrigation test sites on the proposed Lake Andes-Wagner/Marty II Project lands.

The local people are aware of the fact, that to do the proposed research program the construction of the Irrigation Units will be delayed pending the results of the Demonstration Program. I want to emphasize that the local people support the Demonstration Program and also strongly support the full authorization of the Lake Andes Wagner Units. The local people want to know where they stand with Congress after the Demonstration Program is completed and I sincerely hope the subcommittee can see fit to grant the authorization of the Irrigation Units. The agencies and individuals who have a vested interest can share and exchange information made possible by unique dryland farm test sites converted to irrigation under a very comprehensive controlled study, so that environmentally safe projects can be built and maintained for generations to come.

We also support the Plan of Study regarding the wetland/ wildlife enhancement features. The evaluations would be helpful in future development phases and any wetland enhancement that could be accomplished would be very much appreciated by the State of South Dakota and the local people. This would also assist

the Yankton Sioux Tribe in their latest wildlife enhancement and management efforts.

I want to especially thank Chairman Bill Bradley and staff for the special efforts on behalf of the Lake Andes-Wagner/Yankton Sioux folks. Thank you to all the members of the subcommittee for your efforts.

It was a special priviledge for me to be able to work with each of you and you have my best wishes for the future.

State of South Dakota

Board of Water and Natural Resources

Resolution # 90-38

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT AND DEVELOPMENT OF A RESEARCH DEMONSTRATION PROJECT.

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Projects (the Projects) are proposed irrigation projects in Charles Mix County, South Dakota; and

WHEREAS, the Projects will irrigate approximately 48,000 acres in South Dakota; and

WHEREAS, the Projects would stabilize agricultural production in the area, provide new employment opportunities, and encourage the development of agricultural processing plants; and

WHEREAS, development of a 5,000 acre Research Demonstration Project will provide information for South Dakota and the Western States on sub-surface drainage of glacial till soils and the affects of irrigation on seleniferous soils; and

WHEREAS, the Board of Water and Natural Resources supports the development of environmentally sound water projects;

THEREFORE BE IT RESOLVED, that the South Dakota Board of Water and Natural Resources urges the Congress of the United States to authorize the Lake Andes-Wagner/Marty II Irrigation Project and to develop a Research Demonstration Project.

Dated this 12th day of June, 1990.

James A. Beer
Chairman, Board of Water and Natural Resources

(SEAL)

Dale Kinnedy
Secretary, Board of Water and Natural Resources

MID DAKOTA RURAL WATER SYSTEM

120 West Second Street • P.O. Box 69
Miller, South Dakota 57362
(605) 853-3159

Board of Directors
Susan Hargens, Chairman, Orient
Eugene Warriner, Vice-Chairman, Blunt
Warren Porter, Secretary/Treasurer, Highmore
Duane Aymar, Miller
Gerald Gregg, Harrold
John Gross, Onida
Orville Halwick, Highmore
Morris Simon, Gettysburg
Gerald Kutzler, Huron
Don Olson, Huron
Kermit Wulff, Gann Valley

Julie L. Apgar, Manager, Miller

ENCOURAGING THE CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES WAGNER/MARTY II DEMONSTRATION PROGRAM

WHEREAS, Agriculture is the predominant industry in the State of South Dakota, and

WHEREAS, Research is a vital component in the development of modern agricultural techniques, and

WHEREAS, the data collected from the proposed LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM will be beneficial to not only the project area but the entire State of South Dakota, and

WHEREAS, the research from the Lake Andes-Warner/Marty II Demonstration Program will facilitate the establishment of environmentally sound and acceptable agricultural, therefore

BE IT RESOLVED, that the Board of Directors of the Mid-Dakota Rural Water System supports the LAKE ANDES-WAGNER/MARTY II DEMONSTRATION PROGRAM and hereby urges Congressional Authorization of said program.

Adopted this 5th day of June, 1990.

By: Susan Hargens Title: Chairman

ATTEST: By Warren E. Porter Title Secretary

CITY OF WAGNER

Resolution # _____

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT AND DEVELOPMENT OF A RESEARCH DEMONSTRATION PROJECT.

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Projects (the Projects) are proposed irrigation projects in Charles Mix County, South Dakota; and

WHEREAS, the Projects will irrigate approximately 48,000 acres in South Dakota; and

WHEREAS, the Projects would stabilize agricultural production in the area, provide new employment opportunities, and encourage the development of agricultural processing plants; and

WHEREAS, the Projects represent partial fulfillment of the Pick-Sloan program; and

WHEREAS, development of a 5,000 acre Research Demonstration Program will provide information for South Dakota and the Western States on sub-surface drainage of glacial till soils and the effects of irrigation on seleniferous soils; and

WHEREAS, the City of Wagner supports the development of environmentally sound water projects;

THEREFORE BE IT RESOLVED; that the City of Wagner urges the Congress of the United States to authorize the Lake Andes-Wagner/ Marty II Irrigation Project and to develop a Research Demonstration Program.

Dated this 1 day of June, 1990.

City of Wagner

Signature

President of Council

Title

RESOLUTION NO. 90-8

Whereas, the City Council of the City of Lake Andes, South Dakota, is interested in any and all programs or projects which will be beneficial to the economy of the City of Lake Andes; and

Whereas, the Lake Andes - Wagner Water Systems, Inc., is an organization established to promote and facilitate the Lake Andes - Wagner/Marty II Irrigation Project; and

Whereas, the aforesaid project is deemed to be beneficial to the economy of Lake Andes, South Dakota, and the surrounding communities and thereby in the best interests of the citizens of Lake Andes, South Dakota.

NOW, THEREFORE, BE IT HEREBY RESOLVED, that the City of Lake Andes, South Dakota, by and through the City of Council of Lake Andes, hereby lends, offers, and commits itself to the full support of the aforesaid irrigation project.

Dated this 4th day of June, 1990.

The above Resolution was introduced at the regular meeting of the Lake andes City Council on the 4th day of June, 1990, and was passed by the following vote:

AYES: Ackerman, Selken, Gall, Carpenter, Hotchkiss

NAYS: None

ABSENT: Jespersen

Russell J. Stedronsky Mayor
MAYOR RUSSELL J. STEDRONSKY

ATTEST:

(SEAL)

Elaine L. Eldridge
CITY FINANCE OFFICER

CITY OF ARMOUR
BOX 415 — Ph. (605) 724-2167
Armour, SD 57313-0415

To whom it may concern,

The Armour City Council is in support of the Lake Andes Wagner-Marty Two Irrigation Project.

Larry Fuller

Larry Fuller, Mayor

WAGNER CHAMBER OF COMMERCE

Resolution of Support

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Units are located adjacent to Fort Randall Dam and Reservoir, on the Missouri River, and planned as Pick-Sloan Missouri Basin programs; and

WHEREAS, the Flood Control Act of 1944 (Pick-Sloan Plan) provided for multi-benefits described as the Pick-Sloan Plan including irrigation development; and

WHEREAS, the local people have worked long and hard on irrigation development for the area to stabilize the farm units and to improve job and business opportunities; and

WHEREAS, the Lake Andes-Wagner/Marty area is dependant on an agricultural economy; and

WHEREAS, the State of South Dakota supports the development of the Lake Andes-Wagner/Marty II units and the proposed Demonstration Program;

THEREFORE BE IT RESOLVED: that the Wagner Chamber of Commerce urge Governor George S. Mickelson to continue efforts to secure Federal Authorization and funding for the Lake Andes-Wagner/Marty II Units and Demonstration Program;

BE IT FURTHER RESOLVED: that the Wagner Chamber of Commerce urge the South Dakota Congressional delegation to secure Federal Authorization and funding for the Lake Andes-Wagner/Marty II Units and Demonstration Program; and

BE IT FURTHER RESOLVED: that the Wagner Chamber of Commerce, with a unified front, will actively support in every way possible the efforts to secure Federal Authorization of the Lake Andes-Wagner/Marty II Units and Demonstration Program as part of the Pick-Sloan Missouri Basin program.

Dated this 11th day of June, 1990.

Wagner Chamber of Commerce

Signature

President

Title

WAGNER JAYCEES

RESOLUTION OF SUPPORT

RESOLUTION IN SUPPORT OF CONGRESSIONAL AUTHORIZATION OF THE LAKE ANDES-WAGNER/MARTY II IRRIGATION PROJECT AND DEVELOPMENT OF A RESEARCH DEMONSTRATION PROGRAM.

WHEREAS, the Lake Andes-Wagner/Marty II Irrigation Projects (the Projects) are proposed irrigation projects in Charles Mix County, South Dakota; and

WHEREAS, the Projects will irrigate approximately 48,000 acres in South Dakota; and

WHEREAS, the Projects would stabilize agricultural production in the area, provide new employment opportunities, and encourage the development of agricultural processing plants; and

WHEREAS, development of a 5,000 acre Research Demonstration Program will provide information for South Dakota and the Western States on sub-surface drainage of glacial till soils.

WHEREAS, the Wagner Jaycees support the development of environmentally sound water projects;

THEREFORE BE IT RESOLVED: that the Wagner Jaycees urge the Congress of the United States to authorize the Lake Andes-Wagner/Marty II Irrigation Project and to develop a Research Demonstration Program.

Dates this 16th day of June, 1990.

Wagner Jaycees

Cheryl L. Juracek
Signature

Jaycee President
Title

WAGNER CHAMBER OF COMMERCE
P.O. BOX 776
WAGNER, SOUTH DAKOTA 57380-0776

June 14, 1990

Senator Bill Bradley, Chairman
Senate Sub-Committee on Water and Power
US Senate
Washington, DC 20510

Dear Senator Bradley:

The Wagner Area Growth, Inc. was organized March 19, 1990, for the sole purpose to enhance the Industrial Development in the Wagner, South Dakota, area. At present, Wagner relies almost entirely on agricultural for its existence. The balance of our economy from government programs and the Yankton Sioux Tribe.

Wagner Area Growth, Inc. recogonizes the need for Industrial Development to perpetuate the existence of our community. The governing body of this organization preceives Lake Andes-Wagner/Marty II Irrigation Project paramount to the initiation of industrial growth in our area. If this project was funded by your subcommittee, not only would it compliment our present agricultural economy, but would ease the high grade of unemployment we now experience. The Wagner Area Growth, Inc. avidly solicits your support not only for the authorization of the Lake Andes-Wagner/Marty II Demonstration project, but for the general funding of the entire Lake Andes-Wagner/Marty II Irrigation Project.

Sincerely,

Harvey Weisser
Chairman
Wagner Area Growth, Inc.

HW/mrh

Southern Missouri Water Development District

BOARD OF DIRECTORS:
PATRICIA CERNY, CHAIRMAN
BOB SLADE, VICE-CHAIRMAN
CATHERINE WERNKE, SECRETARY
REX WINTER, TREASURER
GEORGE HERROLD
RALPH REIMER
MARVIN LARSON
MANAGER: LYLE LABEREE
CLERK: NANCY BARRICK

P.O. BOX 43
DOUGLAS COUNTY COURTHOUSE
ARMOUR, SOUTH DAKOTA 57313

(605) 724-2624

Re: Lake Andes/Wagner-Marty II Irrigation Systems

My name is Patricia Cerny, and I am Vice Chairman of the Southern Missouri Water Development District. I am a farmer residing in Gregory County.

The Southern Missouri Water Development District Board of Directors has endorsed and is supportive of these projects. We have worked closely with the project for the past few years and feel that they would be of great benefit to the economic health of the Water Development District area. Our Board has supplied technical, financial and legislative assistance to one or both projects.

As you can see from the letterhead, the Southern Missouri Water Development District encompasses a large area outside of the projects, and the majority of the Board members reside outside of the boundaries of the two projects. But we can see the potential for a stabilized economic condition for those in the project, plus we can see the assistance to farmers and ranchers in the water development district because of assured crops needed to maintain animal herds in times of drought. We have no railway system in our area, and must rely heavily on truck transport. When drought strikes our farmers and ranchers have three choices, which are: 1. move herds to states with irrigated land; 2. 'sell down' herds; or 3. transport crops into the area. The cost of transporting for any distance is so prohibitive that we usually rely on the first two options.

The first option is also costly because of the transportation costs of moving herds to and from winter pasture, and the lack of available pasture. The more the need for pasture, the higher the cost. Consequently, the second option, 'selling down' is too often the only choice. When you 'sell down' herds, you lose the breeding capacity of your herds, and between the loss of good stock and the time and cost of rebuilding the herds, many farmers/ranchers are forced out of business.

We find ourselves in a drought condition about every 10 years, and so every 10 years our area population further declines. As the flow of dollars dries up along with the crops, the business people suffer and more businesses close and are never opened again. As the businesses fail, people move to the city,

and our schools, churches and community organizations dwindle. The tax base suffers, and this further curtails our schools, and community, county and state programs.

We depend entirely upon volunteer fire departments and ambulance services. We are finding fewer members of the community to serve in these vital capacities. We cannot afford to pay young doctors enough to replace our aging physicians. The communities are becoming an aged society. We must find methods of retaining our youth in our communities. Rural America needs to retain its young.

We find young couples, Native American and non Native American, trying so hard to build a farm/ranch or business operation in our area so that they can raise their children in the clean air, wide open spaces environment, and be among relatives and caring friends. But without economic stability and a stoppage of declining population, we can not assure them of a business that will provide the financial capabilities to feed, cloth and educate their families.

We look upon these projects as an economic boon to the area in both the short and long term benefits.

The Board of Directors views the request for Federal assistance as a sound investment of the tax dollar. We would rather see the tax dollars utilized as a stabilizing and growth effect in lieu of bankruptcy, welfare and other federal programs that are needed in rural America.

We do realize that a demonstration project is proposed, and we urge Congress to authorize the demonstration project along with the language of authorization of the project once the demonstration project has been completed. It would not seem fair for these people to go through the process of a demonstration project which will be benefit to projects already built and those of the future and have to return for authorization process following years of waiting.

Southern Missouri Water Development District

BOARD OF DIRECTORS
RALPH REIMER CHAIRMAN
PATRICIA CERNY VICE-CHAIRMAN
CATHERINE WERNKE SECRETARY
REX WINTER TREASURER
GEORGE HERROLD
BOB SLADE
WM. L. SOULEK
MANAGER LYLE LABEREE
CLERK NANCY BARRICK

P.O. BOX 43
DOUGLAS COUNTY COURTHOUSE
ARMOUR, SOUTH DAKOTA 57313

(605) 724-2624

Re: Mid Dakota Rural Water Delivery System

My name is Patricia Cerny, and I serve as Vice Chairman of the Southern Missouri Water Development District. Our water development district has endorsed this project (see resolution in project packet) and we support this project. As you will note from the letterhead, Buffalo County lies within the boundaries of the Mid Dakota System, and many residents of that county will receive much needed water.

The Southern Missouri Board of Directors feels that this project is a fine example of what can be done when water development districts work together along with the people in a project. We congratulate the project sponsors on a job well done.

The southern portion of my water development district has several rural water delivery systems already in place. However, we are finding that because of the restrictions placed on these delivery systems, the systems are not being built large enough to meet future needs. We are in a quandary as to how to assist our citizens.

The Safe Drinking Water Act has posed a dire problem for our small communities in our water development district and throughout the state. Our small towns are being told to find another source of water or they will be fined on a daily basis until another source is found. Communities of 50, 150 or 2,550 do not have the financial means to bring water from distant sources, nor can they pay the fines. We have been able to assist several small communities to hook up to a rural water system, and we are working to assist these systems to expand to meet the needs of those who have fallen under the Safe Drinking Water Act criteria. Once again, programs to better the life of the citizen has caused a dire financial crunch on rural America that can not be borne alone.

That is why additional rural water delivery systems such as Mid Dakota are so needed in South Dakota.

The Southern Missouri Board is pleased when we can utilize any Missouri River water, be it for drinking, for industry, for lakes, for growing of crops or whatever the need. We have also been pleased to have been a small part of this proposed project, and we urge its authorization.

June 10, 1990

The Honorable Bill Bradley
Chairman, Subcommittee on Water and Power
SD-306 Dirksen Senate Office Building
Washington, D.C.

Honorable Bill Bradley:

I am writing in support of S.1765 which pertains to Legislation on Mid-Dakota Rural Water System.

Having lived on a farm here in Charles Mix County for the first 30 years of my life, I have experienced first hand many of the frustrations brought on from lack of sufficient water supply. When a water well runs dry, stock tanks empty and livestock suffer. Livestock are one of the main sources of income for many farmers and ranchers here in SD and the rural water system is necessary for their survival.

It is not only livestock that suffer when there is insufficient water supply. People are also effected. Many farm women could tell you their experiences with simple household tasks such as trying to prepare a meal without water, or washing clothes for the family. Rural Water has brought many comforts to the rural areas that city people take for granted. The rural Water System is not a luxury, its a necessity of life and I strongly urge your support on this issue.

Sincerely,

State Rep. Albert Kocer

State Representative Albert Kocer
District 20
Box 817,
Wagner, SD 57380

Upper Missouri
WATER USERS ASSOCIATION

1104 Westwood Dr., Pierre, SD 57501

Our Greatest Resource **WATER** Use It Wisely

DeVin D. Brosz, PE, Sec.-Treas.

June 18, 1990

Honorable Bill Bradley, Chairman
Subcommittee on Water and Power
Hart Building, Room 306
Washington, D.C. 20510

Dear Chairman Bradley:

The Upper Missouri Water Users Association supports S. 1765, Authorization of the Mid-Dakota Rural Water System. This project would provide partial benefits that were promised by the Pick-Sloan Program. The Mid-Dakota Rural Water System would provide for development and increased productivity that would be nationally beneficial. There are 23 municipalities within the project area that do not meet primary or secondary drinking water standards established by the Safe Drinking Water Act. The project would correct this problem. The 2900 rural hookups would also benefit with improved water quality. The Project is a solution to a serious water quality and water quantity problem for the region.

The people of the project area and the State of South Dakota have shown strong support for the project. As President of the Upper Missouri Water Users Association, I ask that the Subcommittee on Water and Power take favorable action on S.1765 by supporting authorization of the Mid-Dakota Rural Water System.

Sincerely,

Gerald Vandenacre

Gerald Vandenacre
President

GV/kb

The Honorable B. W. Bradley,
Chairman, subcommittee duly united and passed

Dear Mr. Bradley:

My name is Marlow Miller. I operate a farming and ranching business 6½ miles south of Hettinger. I own a grain and cattle operation.

We have a deep well which is used for both house and livestock. At least twice a year we must have the well pulled due to corrosion of pipes and bathers getting bad. This is very a large expense.

We mainly use our water for watering livestock and household use. We haul water from Hettinger for drinking and cooking. Our water turns the bathroom fixtures orange with rust and corrodes the pipes and sets the chrome of faucets. At least twice a year, usually in Spring and Fall, our faucets will spit and sputter from built up gas pressure. When this occurs a person is showered with water when turning

on the faucet. Black greasy dust will sometimes come up and smear the bathtub and sink. The water has a terrible gray and greasy smell.

When the livestock have from the dried we must go without water in the house until they are finished.

My wife is not allowed the convenience of a automatic washer because we don't have enough water and it turns white clothes orange.

Drilling another well is costly and would not promise us the quality good water as the white area has the same problems as we do.

We sincerely hope funds can be found for the Mid-Dakota Rural water system. Legislation Bill S 1765 will authorize the rural water syst. for this area. Please keep this in mind and everyone else in this area when voteing on this bill.

Merlan Miller

Statement of

Robert Taylor

To the

Subcommittee on Water and Power, Considering S 1765

United States Senate

June 20, 1990

The Honorable Bill Bradley, Chairman

Mr. Chairman and Members of the Committee

My name is Robert Taylor and I own a small farm in Hand County, Miller, South Dakota and I want to pledge my support for the Mid-Dakota Rural Water System Senate Legislation S.1765.

I must pipe my water supply to my home and livestock from the neighbor's farm, so I am very dependent upon their well. To dig an artesian well is very costly and they are very expensive to maintain. Along with these factors, the water from these wells is not very good quality. I would very much like to see the Mid-Dakota Rural Water System authorized. We do need a good, safe dependable source of water in our area, so I am urging your support of this legislation.

Thank you for your consideration of Senate bill S.1765.

Respectfully yours,

Robert Taylor
Miller, South Dakota

R R # 2, Box 15
Gettysburg S. Dak.
57442

Gentlemen

I have worked for the organization of the North Dakota rural water system the past year or so because it is a necessity for rural people to have a good safe water supply.

We have lived on this farm for 40 years and it has always been a problem for water. The drinking water is hauled from Gettysburg and it is 12 miles around for it and it is real cheap. There are no lakes on the place for the cattle drinks.

The dams that are built fill up with silt & go dry during part of the year & then it is necessary to haul water for the cattle.

~~I~~ In shallow wells pumps dry & the deep wells are very expensive. The quality of the water in a shallow or deep well leaves much to be desired.

E communities development can not take without a good water supply.

We do need good, quality water & we are willing to pay for it

Please support Legislation H. R. 3174

Thanks for your support

Yours truly

Lola [illegible]

South Dakota
Water Congress
P.O. Box 85102 • Sioux Falls, SD 57118-5102 • (605) 334-8744

Statement of

Karen Pearson, Executive Director

On behalf of the South Dakota Water Congress

To the

Subcommittee on Water and Power, Considering S 1765

United States Senate

June 15, 1990

The Honorable Bill Bradley, Chairman

The South Dakota Water Congress fully supports authorization of the Mid-Dakota Rural Water System.

The South Dakota Water Congress is a broad-based citizen's organization with board representation from United Sioux Tribes, South Dakota Rural Electric Association, South Dakota Municipal League, South Dakota Retailers Association, South Dakota Education Association, Industry and Commerce Association of South Dakota, and Associated General Contractors of South Dakota. Members represent the spectrum of South Dakota philosophy, occupation and interest.

We all agree that the Mid-Dakota project is critical to the health of human and livestock, and to the economic stability and growth of a large area of our state. More than 29,000 people and 600,000 head of livestock will be served.

As you know, rural water systems have no negative impact on the environment. The Mid-Dakota legislation goes a step further by building in wetlands enhancement, restoration, & creation through the project.

The South Dakota Water Congress strongly urges you to support authorization of the Mid-Dakota Rural Water System.

Gann Valley SD.
June 13, 1990

Mr. Chairman & Members of the Committee

My name is David Huegen and I own & operate a ranch in Buffalo Co. and I want to pledge my support for Mid Dakota Rural water System Senate Legislation 1765 and Mid Dakota Rural Water system House Legislation 3174.

Much of Buffalo county has to depend on artesian wells for livestock water supply. It is very expensive to drill artesian wells and the water quality is very poor and highly corrosive so the upkeep on appliances & water systems is very costly.

The rangeland is mostly supplied with stock dams and dugouts which the U.S.C.S cost shared many years ago most are getting filled with silt and the holding capacity is getting smaller. In a dry year the water gets stale and is of poor quality. Some even dry up.

I believe Rural Water & pipeline would be a great boost to our county.

Thanks for the consideration

David Huegen
Buffalo Co. Commissioner

Don Hiebert
Gale, Okla. 57386

6-16-90

We need a new supply of water for domestic use.

The test wells we have made do not give us enough pure water! Our small inadequate well has hardness of excess of 100 grains and high nitrate.

Sincerely

Don & Rose Hiebert

117 E. 3rd St. • Miller, SD 57362

GOURMET ICE CREAM & LOWFAT FROZEN YOGURT DELIGHTS

Angie's

605-853-2434

June 16, 1990

To: The Honorable Bill Bradley
Chairman, Subcommittee on Water and Power

Dear Sir,

Angie's Inc. is a manufacturer of ice cream and frozen yogurt products. Before we chose Miller, SD as the new location for our dairy plant, we deliberated long and hard about the problem of water quality in this community. This problem is not unique to only Miller but also the surrounding areas.

The water was tested and approved for our usage at this time. However, with the quality of the water in its untreated state we must continue to monitor the treatment. If something should happen to the treatment plant, our plant would have to close and thus put 7-25 persons on unemployment. The other option would be to install our own treatment facility and that cost would put our plant out of business also. Because we ship across state lines, our plant is subject to strict FDA regulations.

Another area of concern was the cost of repairs to our water-cooled equipment that this extremely hard water would cause. The life of the equipment would be reduced by 75% if we did not use softeners and special filters. This was an added expense that would not be found in other areas of the country.

The redeeming thought behind our move was that the community and the area would work together to obtain a Rural Water System as soon as possible. Not only is this system needed for everyday life in this area, but also for economic growth and development.

Thank you for your time and consideration.

Sincerely,

Angie Hochkammer

Angie Hochkammer, President

HCR 3 Box 31
Gann Valley, SD 57341
June 18, 1990

The Honorable Bill Bradley, Chairman
Subcommittee on Water and Power

I would like to present written testimony for Mid-Dakota Rural Water System Senate legislation S 1765.

Our family lives on a Ranch seven miles northwest of Gann Valley, South Dakota. We have a farming and cow/calf operation. One of our main problems in this area is the lack of sufficient good quality water.

Some of the water problems we encounter are:

1. Lack of water, low dams and dugouts causing the cattle to have poor quality drinking water and the worry about them getting stuck in the mud getting to the water. We have had to haul water to the cattle in very dry years which is very costly. In the winter our stockcows drink thru a watering hole in the ice which causes another concern about them slipping into the water. Our shallow well supply is always short when we have the calves in the yards durning the winter so we do without water in the house when the calves are drinking. So far our shallow water well has not run out of water, but our neighbors to the east and west of us have not been as lucky and the only water they could get was artesian which is very hard and full of minerals.

2. Poor water quality, our water is very hard and even with the water softener conditioner our water pipes corrode and the faucets need to be replaced often because the water just eats away at them.

A rural water system would be a great thing for our area, so that we could have a constant good quality water supply.

We would respectfully urge your favorable consideration of Mid-Dakota Rural Water System Senate Legislation S 1765.

Thank you,
Mrs. Kermit Wulff
Mrs. Kermit Wulff

PIPER PAWNEE BRAVE

AERO SPRAY SERVICE INC.

PHONE JIM SCHICK

BOX 416, MILLER, SD 57362
(605)853-2777

AERIAL CROP SPRAYING • SEEDING • FERTILIZING

CESSNA AGTRUCK

June 21, 1990

The Honorable Bill Bradley
Chairman, Subcommittee on Water and Power

Re: Mid-Dakota Rural Water System Senate Legislation S. 1765

Dear Sir:

In a modern, mid-sized South Dakota town such as Miller, it seems hard to believe that the airport would be lacking of such a basic resource as water.

In a business such as ours water is an essential element. Presently, we must haul the water we need to conduct our aerial spraying operations from town. This constitutes to us not only considerable expense but valuable time lost in a business where timely application of chemicals is all important. A quality, reliable water source would be highly beneficial to our business as it would help us to continue to provide effective aerial application of chemicals to area farmers.

The Miller airport is frequently visited by pilots and passengers bound for Miller or enroute to other destinations. Indeed it is quite embarassing to tell people who want to use the bathroom after a long flight that the only available bathroom facilities are two outhouses. I think this fact reflects poorly on the image of our town. A town the size of Miller should undoubtedly be able to provide such services as bathrooms to those using the Miller airport.

The Mid Dakota Rural Water System would help provide solutions to the water problems facing the Miller airport. The program will significantly benefit our aerial application operations and will provide necessary bathroom facilities to those who arrive in Miller by air. Solving these problems will eventually bring greater prosperity to area agriculture and the Miller community as a whole.

Yours truly,

Arleen Schick

Arleen Schick, Sec. Treas.
Aero Spray Service, Inc.

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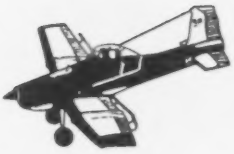

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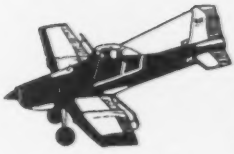

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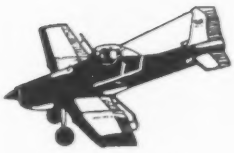

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Arleen Schick, Sec. Treas.
Aero Spray Service, Inc.

South Dakota
Department of Game, Fish and Parks

Office of the Secretary
Sigurd Anderson Building
445 East Capitol
Pierre, South Dakota 57501
(605) 773-3387

June 26, 1990

Mr. Tom Jensen
Committee on Energy & Natural Resources
U.S. Senate
306 Dirksen Building
Washington, DC 20510

Dear Mr. ~~Jensen~~ Tom:

The South Dakota Department of Game, Fish and Parks is supplying this information to clarify a response to a question posed by Senator Bradley during the Senate Water and Power Subcommittee hearing on S. 2710 on June 19, 1990. Senator Bradley's question was as follows:

> "Since the Red Lake Game Production Area is owned by the State, shouldn't the State cost share the cost of the water supplied to it?"

The State of South Dakota should not be responsible for cost sharing project water delivered to the Red Lake Game Production Area even though it is owned by the State. The State has already made a significant financial contribution through its purchase of the 800 acre area. The area is comprised of both wetlands and uplands which in wet years provide waterfowl benefits. Under the Lake Andes-Wagner/Marty II Demonstration Project, water would be supplied to the wetland in the spring of each year if needed. In some years, the wetland would fill with natural run off and supplemental water may not be needed. As you are aware, the Federal Government has jurisdiction over waterfowl and other migratory bird species. The use of the area for waterfowl production would come at some expense to the State. The existing operating and administrative costs would remain with the State. Therefore, since waterfowl production is in the Federal interest, and since the State will provide the uplands, the wetland basin, and the operating and administrative costs on same, we feel the Federal Government should supply the water at its expense.

It is our wish this information be made part of the official record of previously mentioned hearing.

Sincerely,

Dick Beringson

Dick Beringson
Secretary

City of Huron

June 20,1990

The Honorable Bill Bradley
Chairman, Subcommittee on Water and Power
SD-306 Dirksen Senate Office Building
Washington, DC 20510

RE: Mid-Dakota Legislation (S.1546 & H.R. 3174)

Dear Senator Bradley:

A recent correspondence from Governor Gearge S. Michelson, South Dakota, concerning the Mid-Dakota Hearings legislation being held this week in Washington D.C. was received by the City of Huron.

Huron, South Dakota, a city on the James River, could be very dependent on the Mid-Dakota Water System due to the uncertainty of moisture in our area and the fact that we are partially depedent on the river as the city's source of water. The balance from a well field will provide water, for city use, in the winter only. Our concerns are that we have signed with the Mid-Dakota Rural Water System for 2 million gallons of water a day to assist our present systems.

Since the Garrison Dam Diversion Program in North Dakota is not progressing to divert water to the James River, our concerns become more serious from year to year.

Huron supports the Mid-Dakota Rural Water System and Governor Michelson's efforts to push this project which will increase both the quality and quanity of the water needed for our city and rural areas.

Sincerely:

Norman Ambrosius
Water/Sewer Commissioner

P.O. Box 1369 Huron, South Dakota 57350